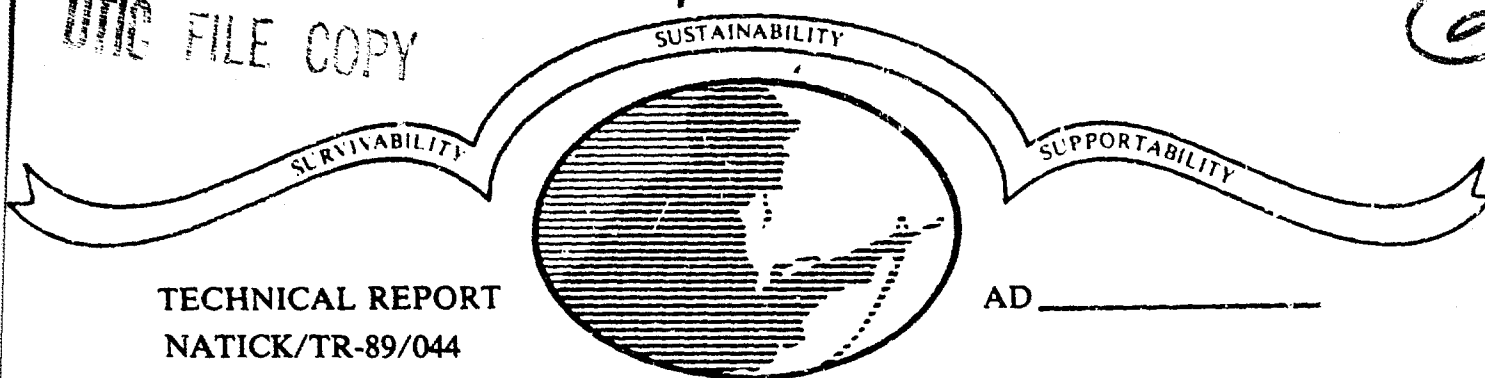


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# 1988 ANTHROPOMETRIC SURVEY OF U.S. ARMY PERSONNEL: METHODS AND SUMMARY STATISTICS

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19. ABSTRACT (Continue on reverse if necessary and identify by block number) Results of the 1987-1988 anthropometric survey of Army personnel are presented in this report in the form of summary statistics, percentile data and frequency distributions. These anthropometric data are presented for a subset of personnel (1774 men and 2208 women) sampled to match the proportions of age categories and racial/ethnic groups found in the active duty Army of June 1988. Dimensions given in this report include 132 standard measurements made in the course of the survey, 60 derived dimensions calculated largely by adding and subtracting standard measurement data, and 48 head and face dimensions reported in traditional linear terms but collected by means of an automated head-board designed to obtain three-dimensional data. Measurement descriptions, visual indices and a glossary of terms are included to help identify and locate dimensions. Also appearing in this report are descriptions of the procedures and techniques used in this survey. These include explanations of the complex sampling plan, computer editing procedures, and strategies for minimizing observer error. Tabular material in Appendices (see reverse)					
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A and C are designed to help users understand various practical applications of the dimensional data, and to identify comparable data obtained in previous anthropometric surveys.



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## PREFACE

This publication is another in the series of reports issued in connection with the U.S. Army Anthropometric Survey (ANSUR) of 1987-1988. The survey was among the most ambitious ever undertaken. A multifaceted sampling strategy and a number of newly devised data-gathering techniques and measuring devices were used for the first time. A measuring team of 22 persons spent nearly a year collecting data on some 25,000 screened subjects and close to 9,000 measured subjects at 11 Army bases. Final editing and analysis of the data that appear in this report in summary form took an additional year. It goes without saying that a project of this scope could not have been completed without the help of numerous military and civilian personnel.

Successful execution of a complex sampling strategy and acquisition of the most comprehensive anthropometric data set ever collected by the Army would have been impossible had it not been for the full and active support received from GEN Carl Vuono, Army Chief of Staff, GEN Joseph Palastra, Commander of the Army Forces Command, GEN Maxwell Thurman, Commander of the Army Training & Doctrine Command (TRADOC), GEN Louis Wagner, Commander of the Army Materiel Command, and CSM William B. Tapp, Jr., Army Materiel Command.

From the U.S. Army Troop Support Command, we thank MG John E. Long, MG Henry G. Skeen (retired), BG Charles E. St. Arnaud, BG Leo J. Pigaty, and CSM Henry L. Thornton for their personal encouragement and active support of ANSUR during its planning, coordination, and execution.

We also thank the command groups and staffs of the following organizations, which provided test subjects despite their heavy mission commitments: the U.S. Army Health Services Command, I Corps, III Corps, the XVIII Airborne Corps, the U.S. Army Chemical School, the U.S. Army Military Police School, the U.S. Army Signal Center, the U.S. Army Aviation Center, the U.S. Army Training Center at Ft. Jackson, and the U.S. Training Center at Ft. Dix. Within each of these organizations were liaison officers and noncommissioned officers responsible for coordination of all the logistic details needed to actually execute the survey at each of the host installations. These liaison personnel made the successful execution of a difficult project possible: MAJ John Roper and CPT Raphael Deegan, Ft. McClellan; MAJ Lawrence Hall and SFC Norman Homan, Ft. Campbell; COL Robert Smoot and SGM Walter Taylor, Ft. Bragg; CPT Joel Weeks, Ft. Stewart; CPT Michael Robinson, Ft. Ord; LTC James Gildersleeve, MAJ Marguerite Campbell and CPT Joseph Dirac, Defense Language Institute; MAJ James Taylor, Ft. Lewis; MAJ James R. Sisson and MAJ Arne W. Owens, Ft. Hood; LTC Dees Stallings, Ft. Gordon; CPT Mark Becker, Ft. Jackson; COL James B. Sauer and CPT Anthony Shannon, Ft. Rucker; MAJ Dale E. Graham and CPT George Trotter, Ft. Dix.

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Within the U.S. Army Natick Research, Development and Engineering Center we gratefully acknowledge the guidance and support received from COL Clinton A. Hodder, COL A.D. Rodgers III, Dr. Robert Lewis, Mr. Edward Levell, Dr. Abner Salant, Dr. Herbert Meiselman, Dr. Lawrence Symington, Mr. Charles Williams, Dr. Carolyn Bensel, and SMG William Wright. These individuals were instrumental in the planning, funding, and execution of ANSUR.

Also at Natick, LTC Stanley Holgate served as senior liaison officer for ANSUR. LTC Holgate's planning of feasible approaches to subject acquisition and his coordination of the acquisition of both facilities and subjects at each ANSUR post were critical to the success of this project. Ms. Beth Ann Holloway, in the capacity of 1LT, served as the Officer in Charge (OIC) at each post and the primary Natick military liaison in LTC Holgate's absence. In her role as OIC, Ms. Holloway kept day-to-day operations functioning smoothly and efficiently.

The data reported in this manuscript were collected by a specially recruited and trained measuring team, who, throughout a year of fieldwork, maintained the highest of professional standards. Ms. Jeryl Neff, the team leader, was responsible for overseeing data collection quality and for the maintenance of crew morale and professionalism. Field crew members, in alphabetical order, were: Donna Acton, Scott Anspach, Gary Ball, Karen Ball, Cindy Blackwell, Mary Bloom, Jeffery Bonner, John Crafts, Lee Gasaway, Lori Hedberg, Mike Herzing, Chuck Janini, Julie Janini, Anne Kaminski, Sara Kelly, Shirley Kristensen, Lisa Love, Jill Parks, Lisa Prenger, Amy Pulse, Lisa Richards, Robyn Tebbetts, Timi Trawick, and Phillip Walker.

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# 1988 ANTHROPOMETRIC SURVEY OF U.S. ARMY PERSONNEL: METHODS AND SUMMARY STATISTICS

## CHAPTER I

### INTRODUCTION

All U.S. military and many foreign services compile and maintain extensive collections of body-size information used primarily to guide the design and sizing of clothing, personal protective equipment, work stations, and computer-generated human models. In order to be effective, such a data base must be updated periodically to accurately reflect the body sizes and proportions of the military population it purports to represent.

The last anthropometric survey of U.S. Army men was conducted in 1966,<sup>1</sup> some 22 years or the equivalent of a military generation ago. A substantial proportion of the sample was young (88% were under 25 years old), and some 78% of the subjects were White. By comparison, only 44% of today's male soldiers are under 25, and 66% are White.<sup>2</sup> Blacks represent 25% of Army men today as compared to 15% in the 1966 survey.<sup>2</sup>

The most recent body-size survey of U.S. Army women was conducted in 1977<sup>3</sup> and, while more current than the male survey, it is characterized by considerably greater differences in racial composition. Three-quarters of the 1977 survey subjects were White, and slightly less than one quarter were Black. Black women comprise more than 40% of today's Army,<sup>2</sup> Whites slightly more than half. The majority of today's Army women are aged 25 and over;<sup>2</sup> in the 1977 survey more than half were 25 and under.

Between 1970 and 1980, the percentage of women in the Army increased nearly sevenfold from 1.46% to 9.85%. Today, women make up 10.88% of Army personnel,<sup>2</sup> and with each passing year, more jobs are filled by women. This means that clothing, protective equipment, and workspaces, originally sized and designed to accommodate males only, must be modified and redesigned to accommodate the larger variations represented by an integrated male/female population.

It was apparent in the mid-eighties that the Army's anthropometric data base had serious deficiencies that limited its applicability for current and future sizing, design, and procurement.<sup>4,5,6</sup> A comprehensive body-size study of U.S. Army men and women was undertaken in 1987-1988 to correct these deficiencies. The goals of this anthropometric survey (ANSUR) were to acquire a large body of data from comparably measured males and females to serve the Army's current design and engineering needs, as well as those anticipated well into the future.

Several new and improved methodologies in the areas of sampling, instrumentation, and verification were used. These included: a complex sampling plan designed to produce a data base that can be adapted to changing population demographics; simultaneous collection and processing of male and female data for the creation of an integrated data base; the use of portable computers for data entry and first-level editing in the field;<sup>7</sup> and the development and use of new measuring devices for the collection of head and hand data.<sup>8,9</sup>

A year of planning preceded the survey. During this time, hundreds of candidate dimensions were sifted to arrive at the final selection, which included 132 directly measured dimensions and three-dimensional coordinates on 26 points of the head and face.<sup>5,6</sup> Summary statistics, including percentile and frequency tables, for these dimensions as well as an additional 60 derived dimensions are reported in this volume. Over 8,000 hand photos were also taken as a permanent resource for future needs.

## SELECTION OF SURVEY DIMENSIONS

To develop the list of dimensions measured in this survey, a comprehensive list of candidate measurements was reviewed and assessed in several ways.<sup>5,6</sup> First, a list of 298 dimensions measured in one or more of 32 anthropometric surveys of men and women, both military and civilian, was circulated among persons who represented many decades of experience in applying anthropometric data to the design of military systems, equipment, and clothing. Each was asked to choose from the list those dimensions considered essential or useful in his or her work and to supplement his or her choices with additional dimensions not found on this list. For some applications, such as the design of three-dimensional head, face, and body forms, individuals who had been responsible for their development were solicited to determine what specific dimensions had been incorporated in these forms and what other dimensional data would have been useful if they had been available. A second line of inquiry involved a questionnaire survey administered to 22 Army and Air Force clothing designers and patternmakers to learn what dimensions they required for their work.

These inquiries resulted in a candidate list which included variables measured in previous surveys as well as dimensions not previously measured but identified as being needed by users of anthropometric data for design purposes. From this list, 12 categories of uses (e.g. clothing design, work space design, human analog design) were identified and 132 dimensions believed to be most useful for meeting these needs were selected to be measured directly on each subject. As noted, another 60 dimensions were derived from the direct measurements. The 26 three-dimensional coordinates obtained from an automated headboard device specially developed for this survey were used to calculate an additional set of 48 head and face dimensions. The use categories and the dimensions applicable to them appear in Appendix A.

## THE SAMPLE

A total of 25,811 subjects at 11 Army posts were screened for this survey. These subjects were measured for height and weight, and filled out biographical questionnaires to provide information that included age, race, ethnic identity, rank, grade, and Army occupation, among other items. The screening sample had a twofold purpose: (1) it was intended to provide a data base for use in studying questions about overall body-size differences (e.g. stature and weight) between occupational subgroups in the Army, and (2) it functioned as a pool from which to select subjects for full measurement in the survey. The sampling strategy and the method used to select subjects to achieve its purposes are described in Chapter III.

From the larger sample, 8,997 subjects were selected to be more fully measured. Because a number of age and race categories were deliberately oversampled as a bankable resource to draw upon should the proportion of these groups change in future years, the measured survey sample was further winnowed to carve out a working data base that reflects the proportions of men and

women in various racial/ethnic and age groups found in the June, 1988 Army. It is this set of 1,774 men and 2,208 women -- the working data base -- whose measurement data appear in this report.

Tables 1, 2 and 3 outline the age and racial/ethnic distributions of male and female subjects in the working data base.

## HOW TO USE THIS REPORT

The working data in this report are given in Chapters IV, V, and VI, which include summary statistics and descriptions of the standard dimensions, the derived dimensions, and the headboard measurements, respectively. Each dimension is described and illustrated. Summary statistics are reported separately for each sex. Visual indices precede the statistical material in each chapter and are designed to help readers identify and locate dimensions by their anthropometric designations.

The landmarks used to define the origin and termination of the measurements made in this survey are listed and briefly described in Chapter II. This chapter also summarizes the operational aspects of the survey and includes descriptions, illustrations, and sources of the instruments used. A full explanation of the sampling strategy appears in Chapter III, which also includes a number of tables that describe the demographic character of the working data base. Chapter VII details the procedures developed to control observer error throughout the year-long survey.

Appendix B contains a brief explanation of the summary statistics used to report the measurement data in Chapters IV, V, and VI. An assessment of the comparability of measurements obtained in this survey with measurements from other major anthropometric surveys appears in tabular form in Appendix C. Finally, a glossary of terms (Appendix D) and an index are included to further help the reader understand the terminology used in this report and locate dimensions of interest.

TABLE 1. Age Distribution of Subjects  
in the Working Data Base.

Females (Mean Age - 26.19)				Males (Mean Age - 27.22)			
Age	Frequency	Percent	Cumulative Percent	Age	Frequency	Cumulative Percent	Percent
17	0	.0	.0	17	1	.1	.1
18	47	2.1	2.1	18	27	1.6	1.5
19	132	6.0	8.1	19	128	8.8	7.2
20	184	8.3	16.4	20	156	17.6	8.8
21	155	7.0	23.5	21	133	25.1	7.5
22	149	6.7	30.2	22	141	33.0	7.9
23	176	8.0	38.2	23	98	38.6	5.5
24	179	8.1	46.3	24	102	44.3	5.7
25	151	6.8	53.1	25	100	49.9	5.6
26	142	6.4	59.6	26	94	55.2	5.3
27	133	6.0	65.6	27	65	58.9	3.7
28	103	4.7	70.2	28	70	62.9	3.9
29	103	4.7	74.9	29	59	66.2	3.3
30	74	3.4	78.3	30	60	69.6	3.4
31	64	2.9	81.2	31	61	73.0	3.4
32	82	3.7	84.9	32	56	76.2	3.2
33	64	2.9	87.8	33	62	79.7	3.5
34	62	2.8	90.6	34	42	82.0	2.4
35	41	1.9	92.4	35	51	84.9	2.9
36	43	1.9	94.4	36	44	87.4	2.5
37	33	1.5	95.9	37	42	89.7	2.4
38	19	.9	96.7	38	42	92.1	2.4
39	13	.6	97.3	39	36	94.1	2.0
40	19	.9	98.2	40	29	95.8	1.6
41	13	.6	98.8	41	28	97.4	1.6
42	5	.2	99.0	42	15	98.2	.8
43	4	.2	99.2	43	9	98.7	.5
44	5	.2	99.4	44	8	99.2	.5
45	4	.2	99.6	45	4	99.4	.2
46	4	.2	99.8	46	4	99.6	.2
47	2	.1	99.9	47	2	99.7	.1
48	1	.0	99.9	48	4	99.9	.2
49	1	.0	100.0	49	0	99.9	.0
50	1	.0	100.0	50	0	99.9	.0
51	0	.0	100.0	51	1	100.0	.1
TOTALS	2,208	99.9	100.0		1,774	100.0	99.9

TABLE 2. Racial/Ethnic Distribution of Subjects  
in the Working Data Base.

Females			Males		
<u>Race</u>	<u>Frequency</u>	<u>Percent</u>	<u>Race</u>	<u>Frequency</u>	<u>Percent</u>
White	1,140	51.6	White	1,172	66.1
Black	922	41.8	Black	458	25.8
Hispanic	58	2.6	Hispanic	68	3.8
Asian/Pacific	32	1.4	Asian/Pacific	28	1.6
American Indian	14	.6	American Indian	12	.7
Mixed/Other	<u>42</u>	<u>1.9</u>	Mixed/Other	<u>36</u>	<u>2.0</u>
TOTALS	2,208	100.0		1,774	100.0

TABLE 3. Percentage of Working Data Base Subjects  
by Age and Racial/Ethnic Category.

<u>Age (yrs)</u>	<u>White</u>	<u>Black</u>	<u>Hispanic</u>	<u>Asian/ Pacific Island</u>	<u>American Indian/ Alaskan Native</u>	<u>Mixed/ Other</u>
Females						
≤ 20	9.47	5.89	0.45	0.23	0.14	0.27
21-24	15.44	12.50	0.72	0.36	0.23	0.59
25-30	15.04	14.99	0.82	0.41	0.14	0.59
≥ 31	11.68	8.38	0.63	0.45	0.14	0.45
Males						
≤ 20	12.63	3.78	0.56	0.23	0.11	0.28
21-24	17.93	6.93	0.90	0.34	0.11	0.51
25-30	15.39	7.67	1.07	0.39	0.11	0.62
≥ 31	20.12	7.44	1.30	0.62	0.34	0.62

## CHAPTER II

### THE SURVEY

#### SUBJECT PROCESSING AND MEASURER TRAINING

In order to measure some 9,000 soldiers at 11 Army posts around the country in the 12 months allotted to the task, considerable advance planning took place both at Anthropology Research Project and at the U.S. Army Natick Research, Development and Engineering Center (NATICK). In preparation for assembling a measuring team, project personnel prepared a training manual<sup>10</sup> designed to serve as the primary instructional guide for members of the team. This handbook contained detailed written and illustrated instructions for marking and measuring subjects, and explained the operation and maintenance of the computer data-entry system, the automated headboard, and the hand photometric system.

A streamlined procedure was devised for measuring some 40 subjects a day. The measurements were divided into groups of approximately 22 each, based on principles of time/motion efficiency. Dimensions assigned to a given measuring station were those that could most easily be measured in sequence without excessive repositioning of subjects, and those that required a minimum of picking up and laying down of instruments. Dimensions were also grouped in such a way that the time required to measure all dimensions at each station was approximately equal. Two landmarking stations were similarly established, as were in- and out-processing stations. Figure 1 illustrates the subject flow plan.

In the meantime, all the necessary arrangements were made at Army posts where measuring teams were to work for periods ranging from ten days to eight weeks. The itinerary was as follows:

Fort McClellan, Alabama	Fort Hood, Texas
Fort Campbell, Kentucky	Fort Jackson, South Carolina
Fort Bragg, North Carolina	Fort Gordon, Georgia
Fort Stewart, Georgia	Fort Rucker, Alabama
Fort Ord, California	Fort Dix, New Jersey
Fort Lewis, Washington	

In July of 1987 a measuring team of 22 persons began an intensive four-week training period prior to their deployment in the field. Early in the training period, team members were assigned to the landmarking or measuring station at which they would work for the duration of the survey. Thus, each team member, under the instruction of professional anthropometrists, concentrated for about three weeks on learning to locate and draw the landmarks or measure the dimensions for which he or she would be permanently responsible.

Two people were assigned to each measuring station, one to serve as a measurer and one as a recorder; pairs of team members alternated these functions throughout each day. Two women were permanently assigned to five of the measuring stations. A male team alternated with a female team at the station where most dimensions between the waist and knees were measured, depending on whether subjects were men or women. These same teams alternated assignments to the headboard/hand photo station. Male and female marking personnel at the landmarking stations also changed from day to day, depending on whether subjects were men or women. They alternated as in- and out-processing clerks when members of the opposite sex were being marked.

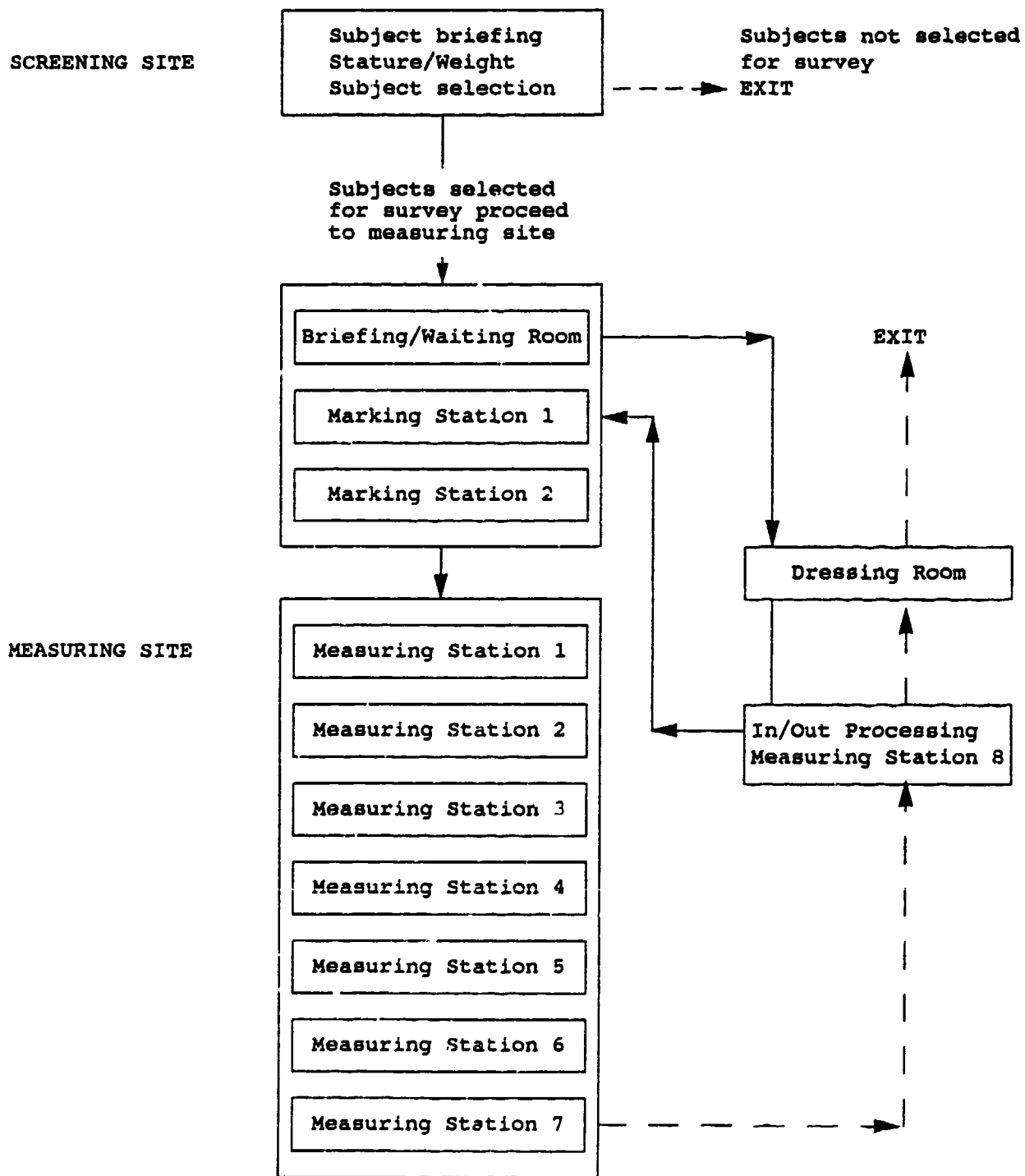


Figure 1. Flow chart for subject selection and processing.



Subjects were selected for measurement in accordance with procedures described in Chapter III. Essentially, they were selected either from unit rosters before the measuring team arrived at a particular post, or from units assembled at a subject-screening site. There, soldiers were briefed on the general purposes of the survey, and filled out forms giving demographic and biographical information about themselves; the data form is attached as Appendix E. At this site, soldiers were measured for Stature and Weight, and were selected or rejected for inclusion in the fully-measured sample by means of a computer program designed to meet the objectives of the sampling strategy.<sup>7</sup>

Soldiers who had been put on the roster from their units for full measurement bypassed the screening formation. These subjects completed biographical forms at the measuring site where they joined screened subjects in a full briefing, which included a description of the measuring procedures to be carried out. After the briefing, all soldiers were given nylon running shorts in which they were measured. Men were measured bare-chested. Women were measured in their bras, and were issued T-shirts to wear while moving around between measuring stations and at stations where upper body exposure was not required.

## COMPUTER PROCEDURES

One of the features that distinguishes this survey from its predecessors is the use of portable computers for data entry in the field.<sup>7</sup> Computers were used for three reasons:

- Entering the data onto electronic media saved time by eliminating hand recording of data. Data were ready for analysis much more quickly than in the past. This also eliminated transferring handwritten data as a source of error.
- The computers were equipped with custom-designed software that edited data values as they were entered. In this way, if a questionable value was identified by the software, the measurers could check it while the subject was still present. Thus, the data coming in from the field contained many fewer errors of measurement or entry than in past surveys and many fewer questionable values about which the data editors had to make decisions.
- The floppy diskettes used in the computers could hold much more data than paper forms of the same size.

Portable personal computers were independently operated at each measuring station. Each subject's data were kept together on a single floppy diskette, which the subject carried from station to station as he/she moved through the measuring process. The subject received the diskette at an in-processing station, at which a computer wrote the subject's number, sex, and date onto the diskette. Each subject was measured and the recorder entered the data into the station's computer. The anthropometric data from that station were then written onto the subject's diskette and onto a station diskette which kept a record of each person measured at that station. Each station's computer also printed the data from that station onto a paper form which the subject carried from station to station. Both the printed form and the station diskette served as backups in case of loss or damage to the subject's diskette. After the subject had been measured, all the data from the diskette were read at the out-processing station to verify that the subject had visited each station, and that the data from each station were recorded properly on the diskette. Data from the subject's biographical questionnaire were also added to the subject diskette at the out-processing station.

The editing routines in the computer software were based on procedures which had been used successfully for some time by the contractor in a number of previous military surveys.<sup>11</sup> The approach is essentially two-phased. A value is first checked against the highest value and the lowest value measured for that variable. If the measured value is higher than the highest value to date, or lower than the lowest value to date, an audible signal is given, which instructs the measurer to take the measurement again. This approach is very effective in screening out wildly aberrant values resulting from a misassembled instrument, misreading an instrument, transposing digits, or misentering a value by 100 or 1000. After each dimension at a station was measured, the second phase of data editing began. The computer software contained a series of multiple regression equations in which the value for each dimension was predicted from the values of two other dimensions at that station. The measured value for a given subject, for a given dimension, was compared to the predicted value. If the measured and the predicted value differed by more than a preset amount, the audible signal was given, and the measurer was asked to remeasure that dimension. In that way, values which were not aberrant for the population as a whole but were disproportionate for that individual were identified and checked.

The computer data entry and editing system, including program source code listings, is completely described in Churchill et al., 1988.<sup>7</sup>

## ANTHROPOMETRIC INSTRUMENTS

Several standard anthropometric instruments as well as a few unique instruments were used in this survey. The standard instruments, all of which are available from Seritex, Inc., 450 Barell Avenue, Carlstadt, NJ 07072, included:

GPM anthropometer	Catalogue No. 101
base plate	Catalogue No. 101F
sliding caliper	Catalogue No. 104
sliding caliper (Poech type)	Catalogue No. 114
spreading caliper, rounded	Catalogue No. 106
Bicondylar Vernier caliper (Holtain caliper)	Catalogue No. 604
steel measuring tape (2-meter)	Catalogue No. 110

These instruments are illustrated in Figures 2 and 3. In Figure 2 the anthropometer is illustrated in the two modes in which it was used.

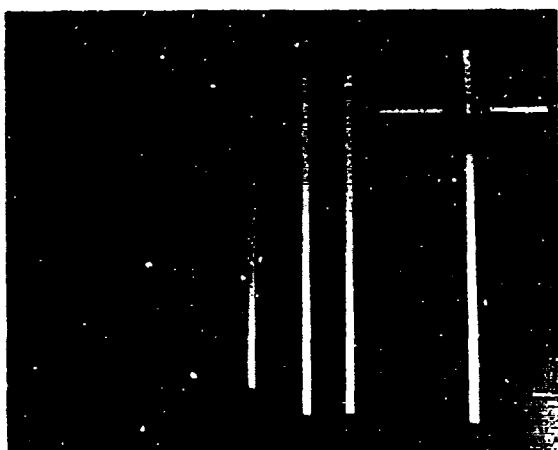


Figure 2. Anthropometer:  
a. beam caliper;  
b. four sections of the  
basic anthropometer.



Figure 3. Calipers and tape:  
a. steel tape;  
b. spreading caliper;  
c. sliding caliper;  
d. Holtain caliper;  
e. Poeh caliper.

The pupillometer for measuring interpupillary breadth is shown in Figure 4.

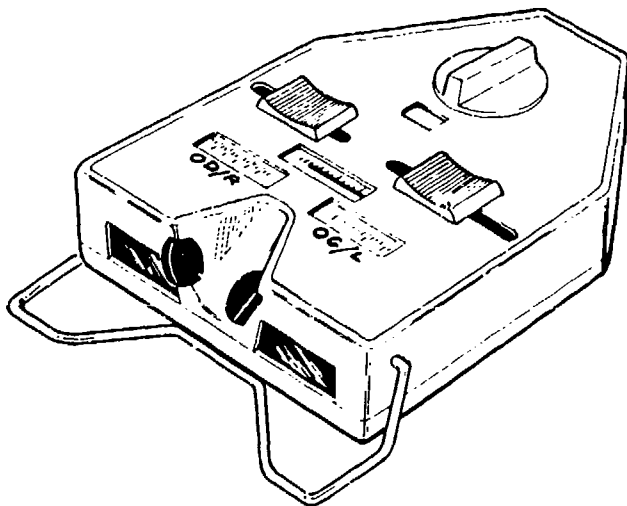


Figure 4. Pupillometer.

This commercial device can be obtained from: Multi-Optics Corporation, 1153 D. Triton Drive, Foster City, CA 94404.

Measuring instruments that were modified or created for the survey include: a functional leg length anthropometer, wall scales, foot measuring boxes, a modified sliding caliper, and a modified tape. Several instruments for use in locating landmarks were also devised. These include a buttock plate, a smooth vertical board that is moved along a table to establish the anterior buttock point of a seated subject (see photograph on page 124).

Other devices were specially designed to help position subjects correctly. The leg leveller, for example, consists of two horizontal flat boards approximately 1 foot by 1.5 feet in size. Sandwiched between the boards are two scissor jacks situated at right angles to each other. When the jacks are raised in concert, the upper board is raised, parallel to the floor. The lower board rests on the floor. The purpose of the device is to raise or lower the legs of the seated subject so that the thighs are parallel to the floor.

The functional leg length anthropometer is shown in Figure 5. This instrument consists of a standard GPM (early series) anthropometer mounted vertically on a sole plate.

Two wall graphs were used to measure arm reaches. Both wall graphs are of graph paper scaled in millimeters and sealed in mylar sheeting. The orientation of the graphs is shown in Figure 6 with reference to the corner near which it is mounted.

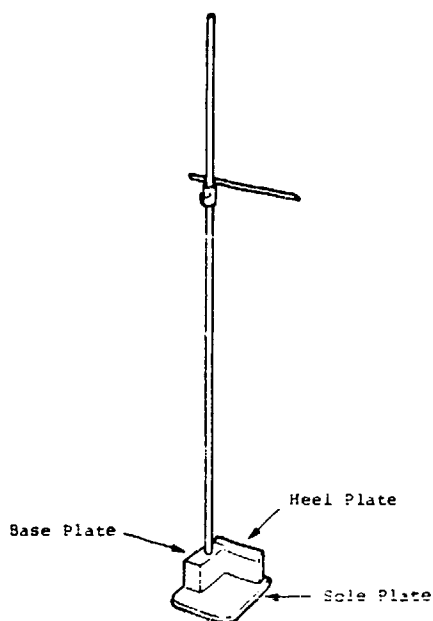


Figure 5. Functional leg length anthropometer.

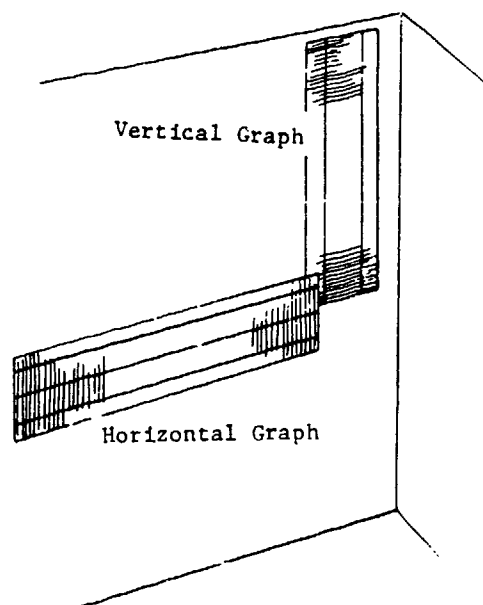


Figure 6. Orientation of wall-mounted graphs.

The foot measuring boxes are made of three-millimeter aluminum stock. Millimeter graph paper affixed to the standing surfaces is covered with Plexiglas. Used in measuring linear dimensions of the foot, the two footboxes, a left and a right, are shown in Figure 7.

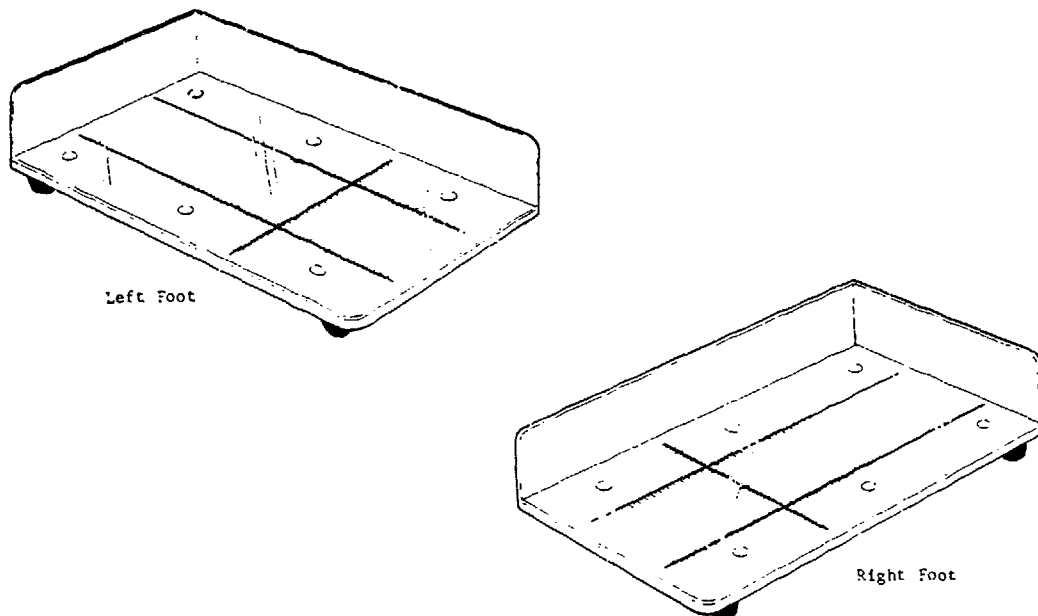


Figure 7. Foot measuring boxes.

A standard GPM (early series) sliding caliper was modified to use in measuring lateral malleolus height. The sliding caliper was modified by removing the fixed arm and substituting a 77-mm arm for the 51-mm arm. The modified instrument is shown in Figure 8.

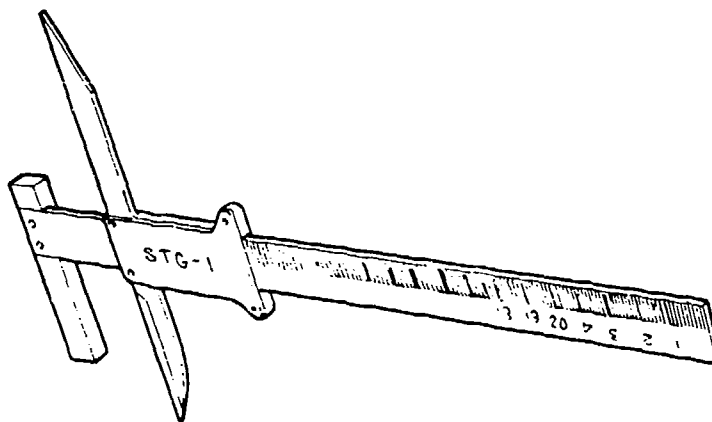


Figure 8. Modified sliding caliper.

The modified tape, used for two posterior crotch length measurements, is made by attaching a dowel to the zero end of a standard tape as a handhold. A triangular plastic pennant is affixed at the zero mark of the tape. The instrument is illustrated in Figure 9.



Figure 9. Modified tape.

Several measuring and marking aids were used in this study. They included a landmark transfer rod and a scye marking aid, which were constructed for the purpose. The landmark transfer rod, approximately six feet high, is shown in Figure 10. It consists of a vertical rod mounted on a triangular base. The base has three casters on the bottom which permit the device to be easily rolled around the subject. A slide that can be moved up and down is mounted on the vertical rod. A dowel is mounted at right angles to the slide and rod; a thin horizontal plate is affixed to the end of the dowel. The device is used to transfer landmarks from one side of the body to the same level on another side.



Figure 10. Landmark transfer rod.

The scye marking aid is a rigid plexiglass straightedge with a line level epoxied to the lower left margin of the straightedge. This device, illustrated in Figure 11, was used to establish the anterior and posterior scye marks.

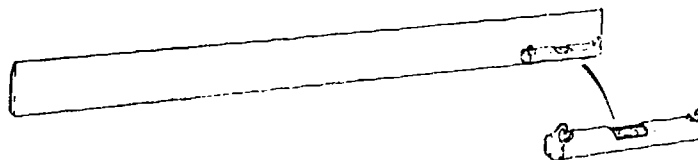


Figure 11. Scye marking aid.

## Automated Headboard Device

The automated headboard device (AHD) was specifically designed and constructed for the measurement of three-dimensional (3-D) coordinates of the head and face. The coordinates are defined in terms of three mutually perpendicular axes (X, Y, and Z) referenced to the intersection of two plane surfaces (headboards) against which a subject's head is positioned for measurement, as shown in Figure 12.

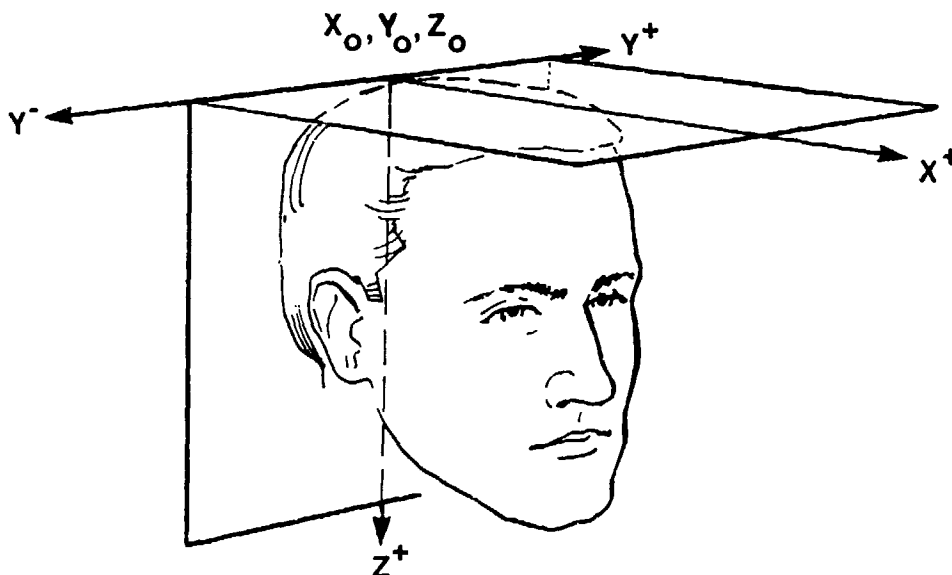


Figure 12. Axis system for headboard measurements.

The AHD is pictured in Figure 13; its basic elements are shown and labeled in Figure 14. The subject positioning system permits the seat to be raised or lowered to bring the subject's head into firm contact with the rear and top headboards (see Figure 15). A head clamp is incorporated to minimize head movement during the approximately 60 seconds required to operate the device. A coordinate measuring system constitutes the measuring elements (see Figure 16). It consists of a movable arm which can be rotated through approximately 200 degrees (rotary bearing), moved in and out 200 mm (horizontal slide), and moved up and down 300 mm (vertical slide). In operation, the objective is to bring a small ruby bead (2-mm diameter) located on a probe on the horizontal slide into light contact with a landmark drawn on the face. The coordinate measuring system is calibrated so that the location of the center of the bead relative to the horizontal and vertical headboard surfaces is known to the nearest 0.1 mm. As the probe is moved around the face from landmark to landmark, their coordinates are entered automatically when the recorder hits a button upon word from the operator that the bead is on the landmark. Encoders attached to each of the movable slides act to convert the movements into electrical pulses that are equivalent to distance. To convert these analog signals into digital coordinate values for three axes, the system is designed to operate with a personal computer programmed to perform the analog-to-digital conversions, total the pulse counts, and perform the necessary trigonometric calculations. A full description of the development, validation, and operation of the AHD may be found in Annis and Gordon, 1988.<sup>8</sup>

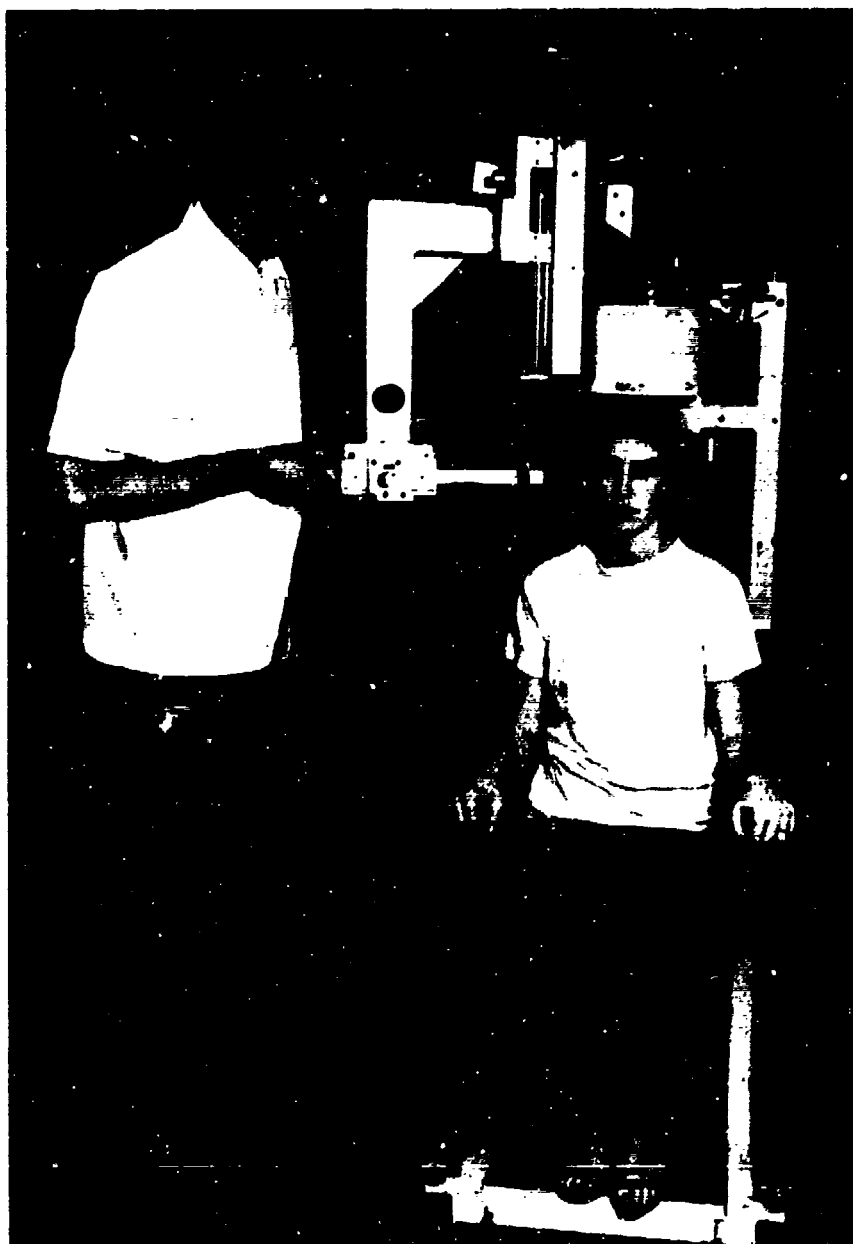


Figure 13. The Automated Headboard Device (AHD).



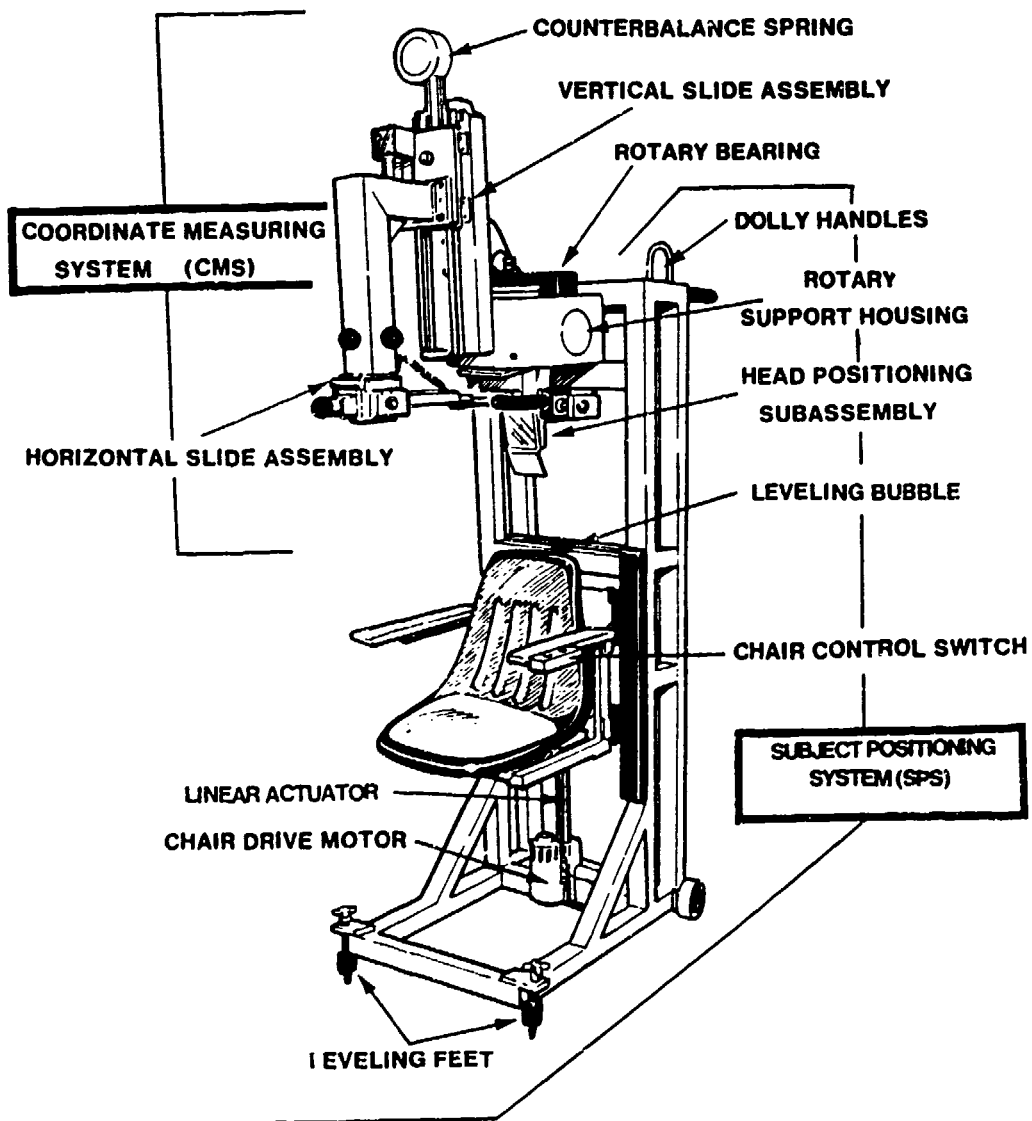


Figure 14. Principal components of the Automated Headboard Device.

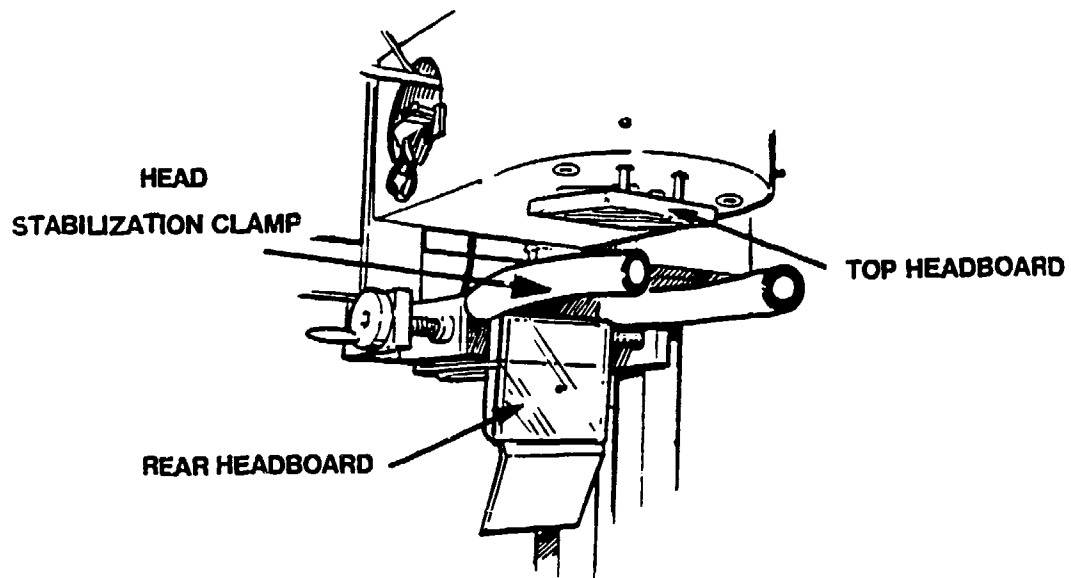


Figure 15. The reference planes (headboards) and head stabilization clamp.

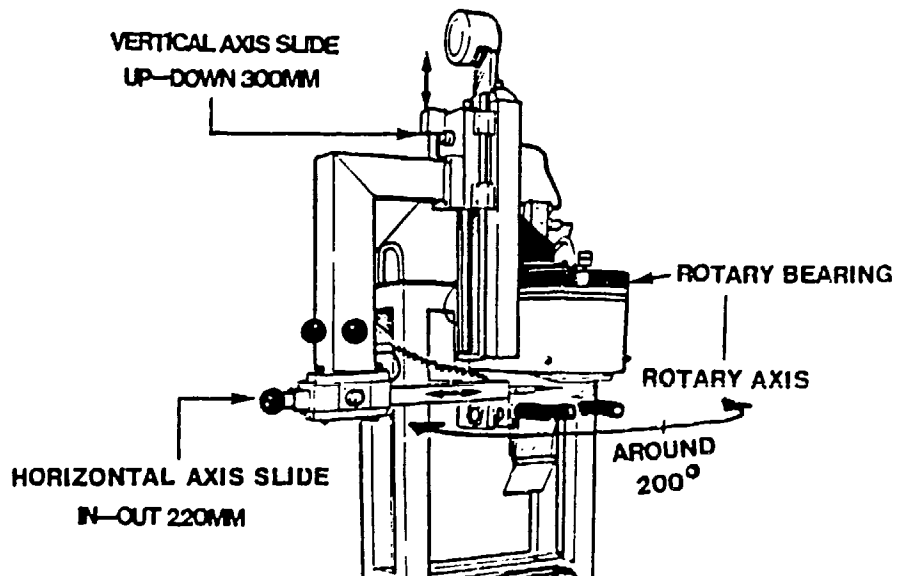


Figure 16. The axis assemblies of the coordinate measuring system and their range of movement.

### Hand Photo Box

Numerous dimensions of the hand and fingers are required for the sizing and design of gloves. Because it was deemed too time-consuming to measure all these variables, a hand photometric system was designed to quickly and accurately capture hand images from which extensive data could be collected at a later time. The device is illustrated in Figure 17.

The system takes two sequential photographs: the first is a photo of the palm, using black-and-white film and flash photography; the second is a silhouette of the hand using a low-wattage bulb for back lighting and a series of lenses which cause the silhouette to be only minimally distorted. It is from the low-distortion silhouette that the measurements are made. The complete system and the optical principles on which it is based are described by Zehner and coworkers.<sup>9</sup>

To collect data from the pairs of photographs, a hand shadowgram data reduction device was developed. This device, specifically designed to accept the photographs from the hand photometric system, superimposes the two images on each other. In this way, the dimensions can be taken from the silhouette image, while using the ordinary palm-and-fingers photograph to identify soft-tissue landmarks. A personal computer and custom-designed software are integral components of the data-reduction device, so the operator can examine the superimposed photographs on the video screen and mark a number of landmarks on the hand using the computer's mouse. The coordinates of the points so identified are automatically read into the computer, which then computes the linear dimensions of the hand from the silhouette image.



Figure 17. Subject seated at photobox.

Additional derived dimensional data on the hand will be available through regression equations. During the course of data collection, finger circumference data were directly measured on 1,190 subjects (620 males and 570 females) for whom hand photographs were also taken. The finger widths and corresponding finger circumferences from those individuals were used to calculate regression equations in which circumference is predicted by finger width. Using those regression equations, finger circumferences can be derived for the remainder of the subjects. Data collection using the hand shadowgram data reduction device is underway as of this writing, and will be reported separately in a NATICK Technical Report.

## THE LANDMARKS

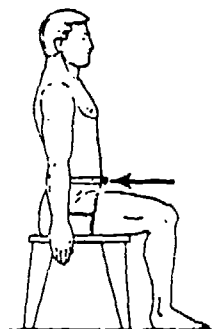
Dimensions are measured from one point on the body (or a fixed surface such as the floor) to another or, in the case of circumferences, around a part of the body at a specified level. To ensure that each dimension is measured accurately and consistently from subject to subject, dimensions are defined in terms of body landmarks, which serve as the origin, termination, or level of measurement of a dimension.

Two men and two women were trained in locating many of these points by palpation or by sight, and placing actual drawn marks on the bodies of all subjects in this survey. Measurers were also trained to recognize other easily located landmarks such as Dactylion II, the tip of the index finger, for which marking was not necessary.

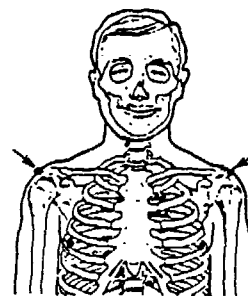
The landmarks used to define the measurements in the survey are listed and briefly described on the following pages. Detailed illustrated instructions for locating these landmarks can be found in the Measurer's Handbook.<sup>10</sup>

## LANDMARKS

**Abdominal point, anterior:** The most protruding point of the relaxed abdomen of a seated subject.



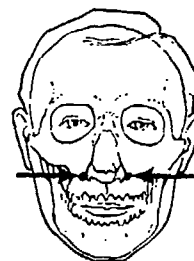
**Acromion, right and left:** The point of intersection of the lateral border of the acromial process and a line running down the middle of the shoulder from the neck to the tip of the shoulder.



**Acropodion:** The tip of the first or second toe of the right foot, whichever is longer.



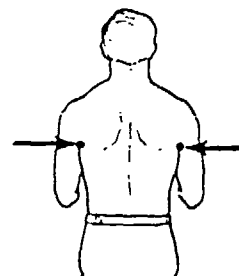
**Alare, right and left:** The lateral point on the flare or wing of the nose.



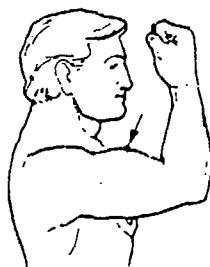
**Anterior superior iliac spine, right and left:** The anterior points of the right and left iliac crests.



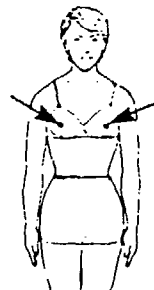
**Axillary fold, posterior: right and left:** The highest points of the right and left axillary folds on the back.



**Biceps point:** The highest point of the right flexed biceps as viewed from the subject's right side.

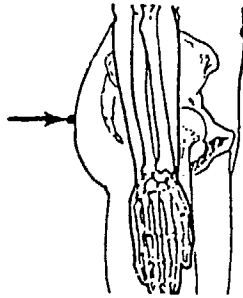


**Bustpoint, right and left:** The anterior points of the bra cups.

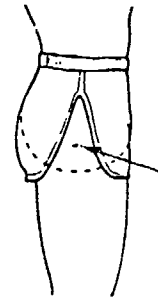


## LANDMARKS (cont'd)

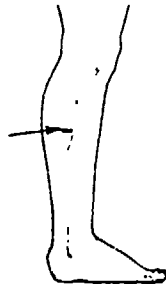
**Buttock point, posterior:** Point of maximum protrusion of the right buttock of a standing subject.



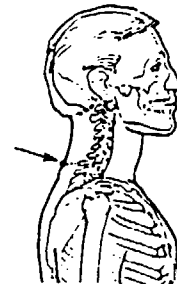
**Buttock point, right lateral and left lateral:** Points on the thigh or hip at the level of the maximum protrusion of the right buttock.



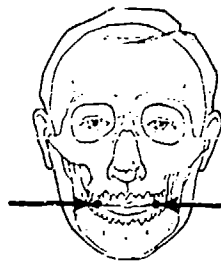
**Calf:** A point on the side of the calf at the level of the maximum circumference of the right calf.



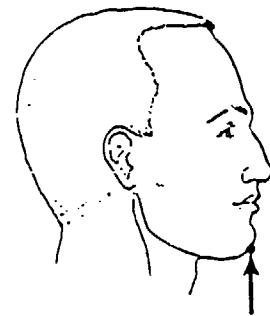
**Cervicale:** The superior palpable point of the spine of the seventh cervical vertebra.



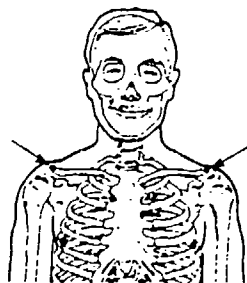
**Cheilion, right and left:** The lateral point of the juncture of the fleshy tissue of the lips with the facial skin at the corner of the mouth.



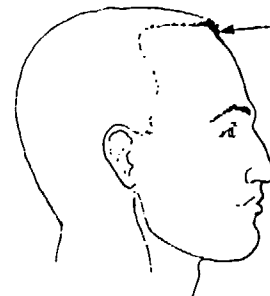
**Chin:** The most protruding point on the bottom edge of the chin, along the jawline.



**Clavicle point, right and left:** The superior point of the lateral ends of the clavicle.



**Crinion:** The lowest point of the hairline on the forehead in the midsagittal plane.



## LANDMARKS (cont'd)

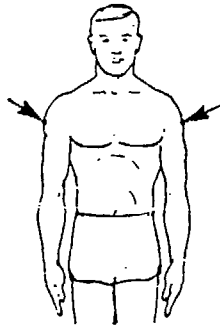
**Dactylion II:** The tip of the right index finger.



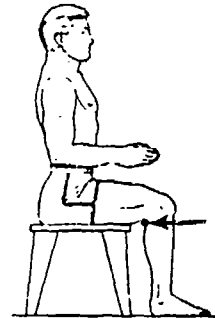
**Dactylion III, right and left:** The tip of the middle finger.



**Deltoid point, right and left:** The lateral point of the right deltoid muscle, and the margin of the left deltoid muscle at the level of the right deltoid point.



**Dorsal juncture of the calf and thigh:** The juncture between the right calf and thigh behind the knee of a subject sitting with the knee flexed 90 degrees.



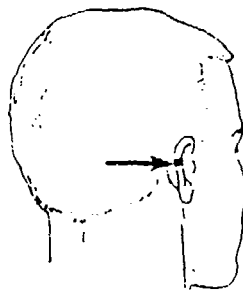
**Dorsal juncture of the foot and leg:** The top of a skin crease between the right foot and the front of the ankle when the knees and ankles are flexed about 30 degrees.



**Ear, bottom:** The lowest point of the right ear on its long axis.



**Ear point:** The lateral point (farthest from the head) of the right ear.

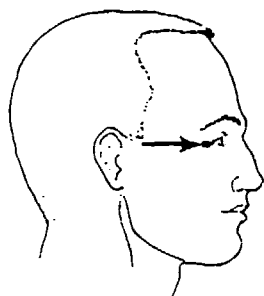


**Ear, top:** The highest point of the right ear on its long axis.

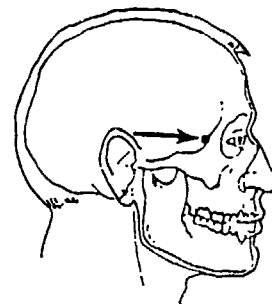


## LANDMARKS (cont'd)

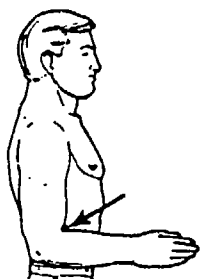
**Ectocanthus:** The outside corner of the right eye formed by the meeting of the upper and lower eyelids.



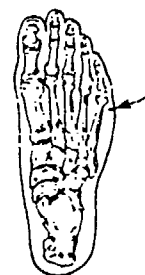
**Ectoorbitale, right and left:** The posterior point on the frontal process of the zygomatic bone at the level of the outer corner of the eye.



**Elbow crease:** The skin crease on the inside of the right elbow joint when the elbow is flexed 90 degrees.



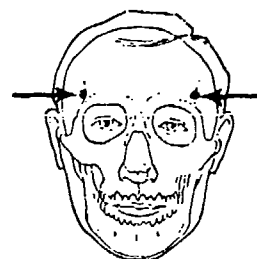
**Fifth metatarsophalangeal protrusion:** The lateral protrusion of the right foot in the region of the fifth metatarsophalangeal joint.



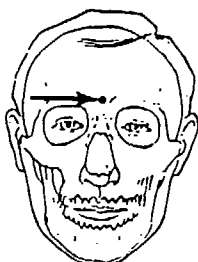
**First metatarsophalangeal protrusion:** The medial protrusion of the right foot in the region of the first metatarsophalangeal joint.



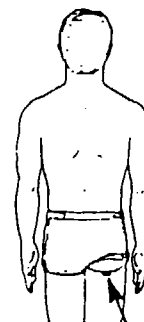
**Frontotemporale, right and left:** The point of deepest indentation of the temporal crest of the frontal bone above the browridges.



**Glabella:** The anterior point on the frontal bone midway between the bony browridges.



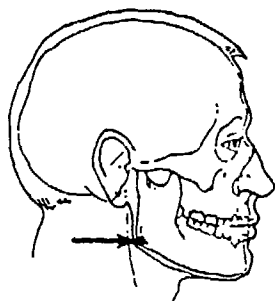
**Gluteal furrow point:** The lowest point of the lowest furrow or crease at the juncture of the right buttock and the thigh.





## LANDMARKS (cont'd)

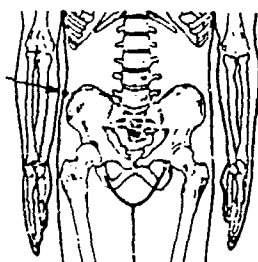
**Gonion, right and left:** The lateral point on the posterior angle of the mandible (jawbone).



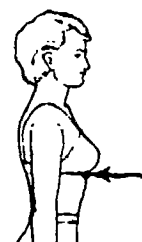
**Heel point, lateral and medial:** The lateral and medial points of the right heel located at or behind the most protruding point of the lateral malleolus (outside ankle bone).



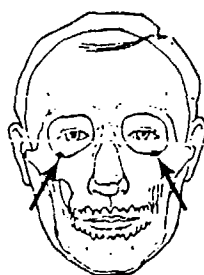
**Iliocristale:** The highest palpable point of the right iliac crest of the pelvis, one half the distance between the anterior superior iliac and posterior superior iliac spines.



**Inferior breast point:** The inferior point of the juncture of the lower of the two breasts with the torso.



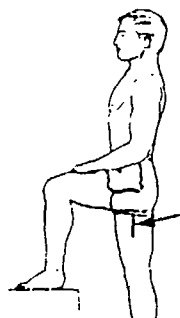
**Infraorbitale, right and left:** The lowest point on the anterior border of the bony eye socket.



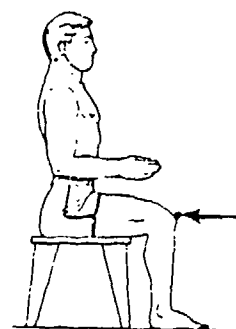
**Infrathyroid:** The inferior point in the midsagittal plane of the thyroid cartilage (Adam's apple).



**Inner thigh:** A vertical line halfway between the front and back of the right inner thigh, and extending downward from the level of the gluteal furrow.

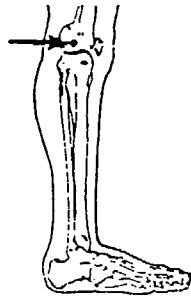


**Knee point, anterior:** The most protruding point of the right kneecap of a seated subject.

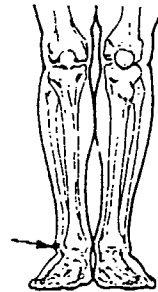


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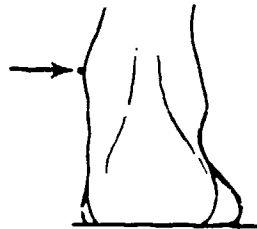
**Lateral femoral epicondyle, standing and sitting:** Lateral point of the right femoral epicondyle (knee pivot point).



**Lateral malleolus:** The lateral point of the right lateral malleolus (outside ankle bone).



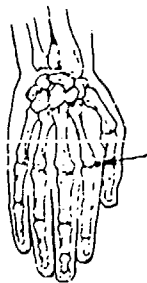
**Medial malleolus:** The medial point of the right medial malleolus (inside ankle bone).



**Menton:** The inferior point of the mandible in the midsagittal plane (bottom of the chin).



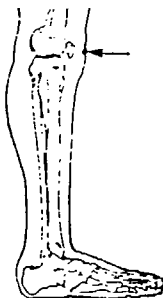
**Metacarpale II:** The lateral point of the right metacarpophalangeal joint II (at the base of the index finger on the outer edge of the hand).



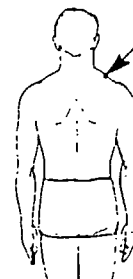
**Metacarpale V:** The medial point of the right metacarpophalangeal joint V (at the base of the little finger on the outer edge of the hand).



**Midpatella:** The anterior point halfway between the top and bottom of the right patella (the kneecap).

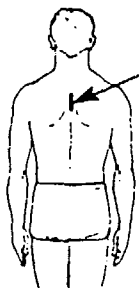


**Midshoulder:** The point on top of the right shoulder midway between the neck (right trapezius point) and the tip of the shoulder (acromion, right).

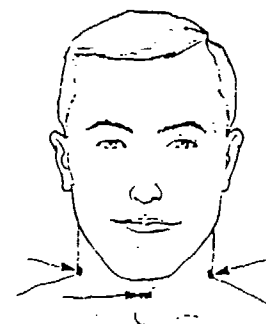


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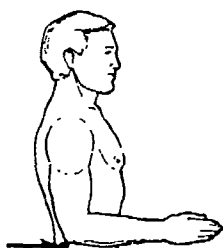
**Midspine:** A line down the center of the back.



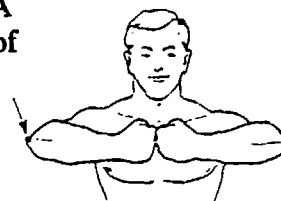
**Neck:** anterior, right lateral, and left lateral: Anterior and lateral points at the base of the neck.



**Olecranon, bottom and rear:** The lowest and rearmost points of the right elbow with the elbow flexed 90 degrees.



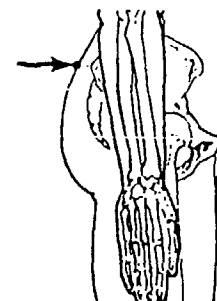
**Olecranon, center:** A point on the center of the curvature of the right olecranon process with the elbow flexed about 115 degrees.



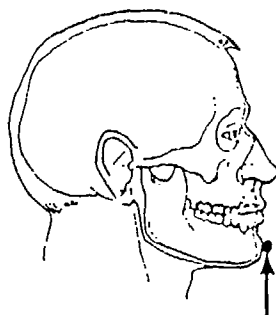
**Otopasion superior:** The anterior superior point of the juncture between the right ear and the head.



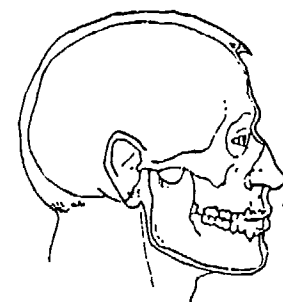
**Posterior superior iliac spine:** The posterior point of the crest of the right ilium. A dimple normally overlies this point.



**Promenton:** The anterior projection of the soft tissue of the chin.



**Pronasale:** The point of the anterior projection of the tip of the nose.

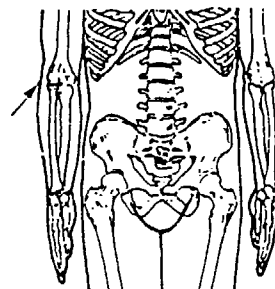


## LANDMARKS (cont'd)

**Pternion:** The posterior point of the right heel.

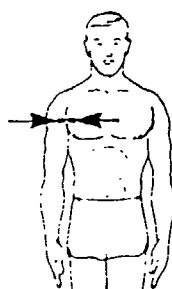


**Radiale:** The highest point on the outside edge of the right radius.



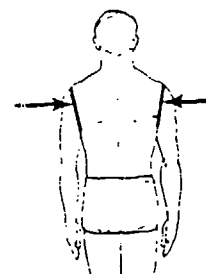
**Scye:** Points on the upper arm and torso associated with the armhole of a garment.

**Anterior scye on the torso:** A short horizontal line on the torso originating at the apex of the right anterior axillary fold.



**Anterior scye on the upper arm:** A short horizontal line on the upper arm originating at the apex of the right anterior axillary fold.

**Posterior diagonal scye, right and left:** A diagonal line connecting the apex of the posterior axillary fold with the acromion landmark on the tip of the shoulder.



**Posterior horizontal scye, right and left:** A short horizontal line on the back originating at the apex of the posterior axillary fold.



**Midsbye, right and left:** A short horizontal line bisecting the Posterior diagonal scye landmark.



**Posterior vertical scye, right and left:** A short vertical line on the back originating at the apex of the posterior axillary fold.

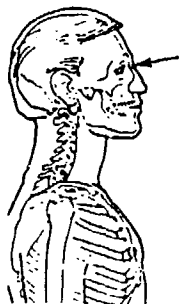


**Scye level at midspine:** A short horizontal line across the spine at the level of the Posterior horizontal scye landmarks.

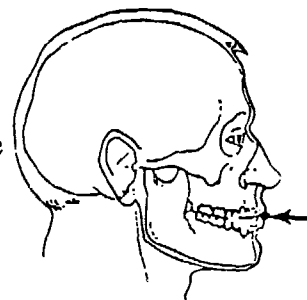


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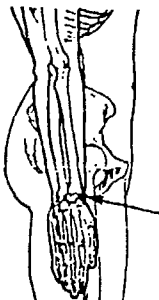
**Sellion:** The point of the deepest depression of the nasal bones at the top of the nose.



**Stomion:** The point of intersection of the upper and lower lip in the midsagittal plane when the mouth is closed.



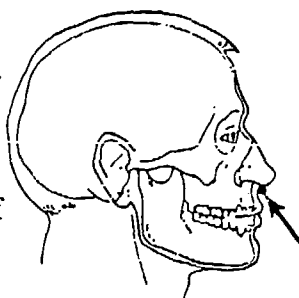
**Styloid:** The lowest point of the bottom of the right radius.



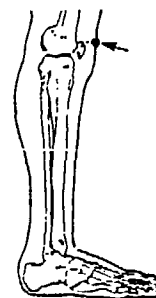
**Submandibular:** The juncture, in the midsagittal plane, of the lower jaw (mandible) and the neck.



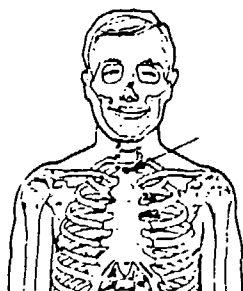
**Subnasale:** The point of intersection of the philtrum (groove of the upper lip) with the inferior surface of the nose, in the midsagittal plane.



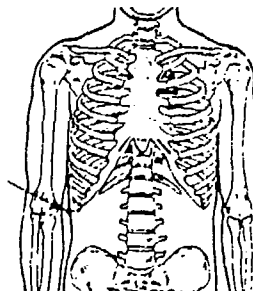
**Suprapatella:** The superior point of the right patella (kneecap).



**Suprasternale:** The inferior point of the jugular notch of the sternum (top of the breastbone).

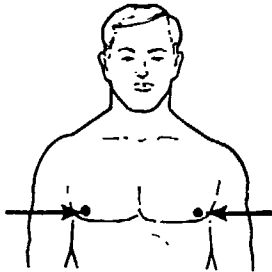


**Tenth rib:** The inferior point of the right tenth rib (bottom of the rib cage).

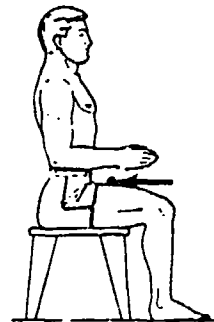


## LANDMARKS (cont'd)

**Thelion, right and left:** Center of the nipple (on males).



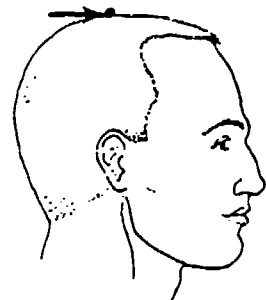
**Thigh point, top:** The highest point of the top of the right thigh of a seated subject.



**Thumbtip:** The tip of the right thumb.



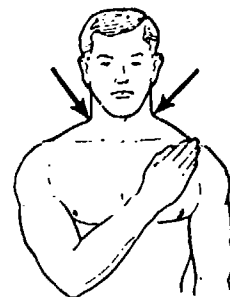
**Top of head:** The highest point on the head when the head is in the Frankfort plane.



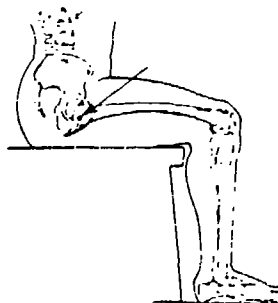
**Tragion, right and left:** The superior point on the juncture of the cartilaginous flap (tragus) of the ear with the head.



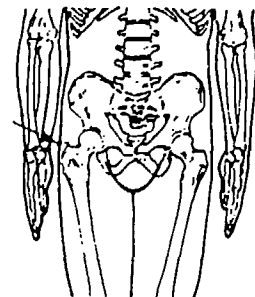
**Trapezius point, right and left:** The point at which the anterior border of the trapezius muscle crosses the lateral neck landmark.



**Trochanter:** A point at the center of the lateral surface of the greater trochanter of the right femur of a sitting subject.

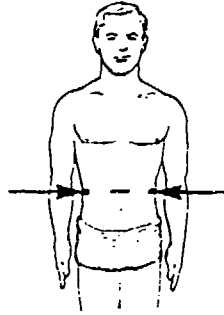


**Trochanterion:** The superior point of the greater trochanter of the right femur of a standing subject.

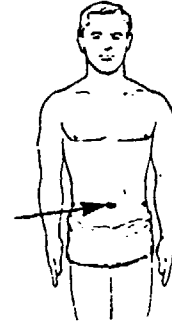


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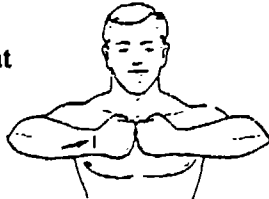
**Waist (natural indentation):** right and left; anterior and posterior: Level of the greatest indentation on the right side of the torso, or half the distance between 10th rib and Iliocristale if no single indentation is clear.



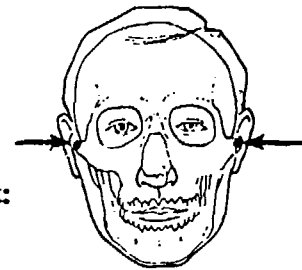
**Waist (omphalion):** right and left; anterior and posterior: Level of the center of the navel.



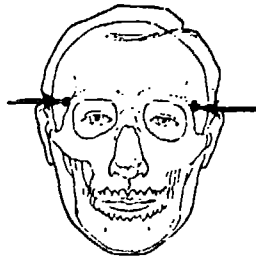
**Wrist, dorsal:** A line across the back of the right wrist originating at the stylium landmark and perpendicular to the long axis of the arm.



**Zygion, right and left:** The lateral point on the zygomatic arch.



**Zygofrontale, right and left:** The lateral point of the frontal bone on its zygomatic process.



## CHAPTER III

### THE SAMPLE

In a very important sense, the sampling strategy is the single most critical element of an anthropometric survey. The decision about whom to measure directly affects the mean value, the standard deviation, and all other statistical measures for each dimension measured. Yet the designer of the sampling plan is pulled in many directions by various user groups who need samples specifically drawn for their own research or design needs. Because a major anthropometric survey is such a monumental effort, and therefore conducted only infrequently, the design of the sampling strategy is even more important because many needs must be met with a single survey. The sampling strategy for the ANSUR survey was devised with four not readily compatible objectives in mind. The survey sample must:

- accurately and comprehensively represent the range of body sizes of current U.S. Army personnel;
- accurately and comprehensively represent the body size of the U.S. Army in the year 2000 and beyond;
- contain adequate numbers in various demographic subgroups to answer basic research questions about the nature of human variability by race and age;
- contain adequate numbers in specific occupational subgroups (e.g., armor and aviation) so that end-items of personal protective equipment can be designed around the anthropometry of individuals in those specific groups where meaningful differences between groups are found to exist.

The first three of these goals require the measurement of many anthropometric dimensions, which perforce limits the number of subjects who can reasonably be measured. The fourth objective can be met by measuring stature and weight only, which together are excellent descriptors of overall body size. This short list of dimensions makes it practical to measure a much larger sample which is needed, in any case, to obtain adequate representation from the many occupational categories that exist in the Army.

Two separate sampling plans were put into operation. The first was designed to obtain a data base that would meet the requirements of the first three objectives. Individuals selected under this sampling strategy were measured for all 132 dimensions; automated headboard data and hand photos were also obtained from these subjects. The second sampling strategy was designed primarily to answer questions about overall body size differences between occupational subgroups. These individuals were measured only for stature and weight. It should be noted that in the plans' implementation, subjects for the first sampling plan were recruited as a subset of those contained in the second sampling plan. This approach eliminated the duplicate effort that would have resulted from two sampling plans operating independently. For ease of reporting, the first sample is termed the measured sample. We refer to the second sample, designed to compare occupational subgroups, as the screened sample. This chapter describes the development and implementation of each of these sampling plans.



## THE MEASURED SAMPLE

The challenge to be met in designing a sampling plan that would produce data suitable for achieving three different objectives was the resolution of several apparently built-in conflicts. One problem, for example, was that a sample representing the body size of the current U.S. Army was unlikely to accurately represent the body size of the Army at points in the future unless the Army itself were to undergo no changes. Each of these goals might also be inconsistent with a sample containing enough men and women in various racial/ethnic/age groups to answer questions of racial/ethnic/age variability. Our solution was to measure more individuals than are needed for any one goal and thereby create a pool of measured individuals. A subset of the pool could then be selected at any time (or at many times) after the survey to address the needs of a particular research question or to represent the Army at that time or in the foreseeable future. The subset drawn to reflect the current (June 1988) Army is termed the working data base. The data summarized in this volume are from that working data base.

### The Sampling Cells

Earlier work had shown that age and race are both extremely important in influencing body size and shape.<sup>4,5,6</sup> Because of this influence, race and age became the cornerstones of a stratified random sampling plan designed to select subjects representative of the Army population. Age was arbitrarily divided into quartiles since research showed that there were no biologically meaningful divisions that would pertain to all the measured variables in this survey. Other considerations which have been used in other surveys, such as military rank or military occupation, were not used for the purpose of constructing sampling cells because much of the body size variability accounted for by those factors is already subsumed under age.

Age is a continuous dimension which means that within the age limits of the Army there are individuals of every age. Race/ethnicity, while not continuous, can be divided into numerous categories. Because the sampling plan had to be functional in the field as well as theoretically sound, both age and race were divided into discrete categories for sampling purposes. Age was divided into four groups:  $\leq 20$ , 21-24, 25-30, and  $\geq 31$  years. The designated racial/ethnic groups were: White, Black, Hispanic, Asian/Pacific Islander, and American Indian/Alaskan Native. The combination of four age groups and five racial/ethnic categories yields a matrix of 20 sampling cells. These are illustrated in Table 4. Identical matrices were created for both males and females.

TABLE 4. Sampling Cells.

White ≤ 20 yrs	Black ≤ 20 yrs	Hispanic ≤ 20 yrs	Asian/ Pac Isl ≤ 20 yrs	Am Ind/ Alas Nat ≤ 20 yrs
White 21-24 yrs	Black 21-24 yrs	Hispanic 21-24 yrs	Asian/ Pac Isl 21-24 yrs	Am Ind/ Alas Nat 21-24 yrs
White 25-30 yrs	Black 25-30 yrs	Hispanic 25-30 yrs	Asian/ Pac Isl 25-30 yrs	Am Ind/ Alas Nat 25-30 yrs
White ≥ 31 yrs	Black ≥ 31 yrs	Hispanic ≥ 31 yrs	Asian/ Pac Isl ≥ 31 yrs	Am Ind/ Alas Nat ≥ 31 yrs

### The Sample Size

The various goals of the overall sampling plan were considered to be best achieved by assigning an individual sample size to each sampling cell. In a strictly stratified random sample, the number of subjects (n) assigned to each cell would be in proportion to that cell's representation in the population as a whole. To use such an approach here, however, would only have achieved the first of the stated goals: to represent the current Army. We sought, therefore, to meet all the stated objectives by establishing cell size with respect to the most stringent goal--that is, in this case assembling a data base sufficient to address fundamental research questions about body size and proportion differences between age/race groups.

Shape and proportion questions are often best answered by various multivariate techniques, as well as by comparisons of means and percentiles. This sampling goal essentially requires an adequate n in each cell to examine these issues. Gorsuch<sup>12</sup> suggests that a minimum acceptable n for multivariate issues is five times the number of variables included in the analysis. Although 132 dimensions were directly measured in this survey, it is extremely unlikely that any body size or shape question would require consideration of all dimensions at once. Indeed, it is unlikely that an analyst would include more than 50 dimensions in a single analysis. Thus, 250 (5 subjects times 50 variables) could be taken as a minimum number of subjects for each cell in the sampling strategy.

For a number of the age/race categories, however, 250 subjects was an unrealistic goal, because individuals in these categories occur at such low frequency in the current Army. Such categories include Asian/Pacific Islanders and American Indian/Alaskan Natives of both sexes and all age groups, and Hispanic females. For example, the Army's December 1983 census,<sup>13</sup> the most recent data available when the sampling strategy was devised, showed approximately 200 American Indian females in the entire U.S. Army.

Goals for the low frequency racial/ethnic groups were established by taking 10% of the December 1983 census from each of those groups and dividing the number evenly over the four age categories. In the field, of course, every effort was made to increase the sample in those

categories above the minimum level. The final sampling goals for each of the cells are shown in Tables 5 and 6.

TABLE 5. Sampling Goals: Males.

Age	White	Black	Hispanic	Asian/ Paci Isl	Am Ind/ Alas Nat
≤ 20 yrs	250	250	250	50	25
21-24 yrs	250	250	250	50	25
25-30 yrs	250	250	250	50	25
≥ 31 yrs	250	250	250	50	25

TABLE 6. Sampling Goals: Females.

Age	White	Black	Hispanic	Asian/ Paci Isl	Am Ind/ Alas Nat
≤ 20 yrs	250	250	50	5	5
21-24 yrs	250	250	50	5	5
25-30 yrs	250	250	50	5	5
≥ 31 yrs	250	250	50	5	5

### Implementation

Data collection for the anthropometric survey took place over the course of a year. Because of the numerical frequency of Army personnel in certain age/race categories (specifically the younger Whites and Blacks), it would easily have been possible to fill those sampling cells in the first few weeks of measuring. This would have been unwise for two reasons. First, it would not have been possible to sample from a wide variety of occupational groups, and this lack of diversity would have compromised the goals of the screening sample. Second, if the cells had been filled on the basis of available subjects, the most populous cells would have been filled early, making it increasingly difficult to fill the remaining cells. The approach used was a planned, steady filling of each of the cells over the course of the entire year. In this way, individuals from every occupational group sampled can generally be found in each of the sampling cells.

The steady-filling method presupposed certain knowledge of the demographic distribution of individuals within the Army, at the posts where measuring took place, and within specific units on each post. Posts were chosen partly on the basis of their populations of individuals in each of the age/race categories and partly on the basis of particular occupations represented there. At each post, the availability of subjects in particular age/race cells dictated the choice of method for subject recruitment.

The first method, used primarily at Training and Doctrine Command (TRADOC) posts, made use of personnel printouts which contained information on race and age from each unit. In this approach, specific individuals were selected randomly to meet sampling goals and then put on the roster for measuring. Individuals not selected for measuring were not called to the survey at all. This method was undertaken to minimize the impact on training schedules with little flexibility.

A second method, used primarily at U.S. Army Forces Command (FORSCOM) posts, was to screen complete units and select appropriate numbers of individuals to fill each of the cells. This method produced the large screened sample called for in the second sampling plan and provided subjects needed to fill the age/race cells required by the first sampling plan. Group demographic information on the unit was used to determine what proportion of the unit's individuals in each cell would be needed for that session's measuring. A portable personal computer was used to randomly select for full measurement every *n*th individual in a given category. If, for example, a particular unit had 80 White males between the ages of 21 and 24, and 5 of these individuals were needed to evenly fill that cell, then the computer would select the first White male between 21 and 24 and then every 16th one thereafter, until the 5 individuals were selected. This process was carried out simultaneously for each of the categories. Because it was the goal of the sampling strategy to acquire as many Hispanic females, Asian/Pacific Islanders and American Indian/Alaskan Natives (both sexes) as possible, the computer always selected all subjects from those categories. Even so, because of the low frequency of these individuals in the Army as a whole, sampling at 100% did not often result in large numbers of individuals. In units which had a higher-than-usual frequency of such personnel, the proportion of Whites and Blacks was reduced appropriately to allow the continued selection of the low-frequency groups at 100%.

The final measured sample consisted of 5,506 males and 3,491 females. Tables 7 and 8 show the demographic distribution of males and females, respectively. The percentages of each category relative to the whole sample can be compared to corresponding percentages in the whole 1988 Army population<sup>2</sup> as shown in Tables 9 and 10. Note that all these tables contain a sixth racial/ethnic group labeled "Other." While individuals of groups beyond the five racial/ethnic categories of interest were not specifically sampled, there were, of course, individuals who did not fit into any of the above-named categories. Such individuals might be of mixed parentage, such as Black/White, or of racial groups too infrequent in the U.S. Army to be included in the sampling plan. Examples of such groups would be Arabian or Asian Indian. Although these individuals are too infrequent to consider specifically in a sampling strategy, they are nevertheless in the Army and must be included when designing uniforms, personal protective equipment, and workspaces. Therefore, "Other" individuals were included in the creation of the working data base.

### The Working Data Base

The working data base is a secondary sample, drawn after the data collection was completed, to be demographically representative of the June 1988 U.S. Army in terms of age and racial/ethnic composition. The working data base was constructed so that its proportions in each cell would be equivalent to those of the total Army.

Creating the working data base was a three-step process. First, the total size of the working data base was determined. Then, proportions of that total were taken to reflect Army percentages in each category as shown in Tables 9 and 10. Finally, individuals were selected randomly from each cell of the measured sample to fill the cells of the working data base.

TABLE 7. Demographic Distribution of Measured Males.

<u>Age</u>		<u>White</u>	<u>Black</u>	<u>Hispanic</u>	<u>Asian/ Pacific Island</u>	<u>American Indian/ Alaskan Native</u>	<u>Other</u>	<u>Row Total</u>
$\leq 20$	Count	406	367	209	50	21	111	1,164
	%	7.4	6.7	3.8	0.9	0.4	2.0	21.2
21-24	Count	418	365	281	96	35	155	1,350
	%	7.6	6.6	5.1	1.7	0.6	2.8	24.5
25-30	Count	516	367	290	122	20	97	1,412
	%	9.4	6.7	5.3	2.2	0.4	1.8	25.6
$\geq 31$	Count	639	367	295	182	12	85	1,580
	%	<u>11.6</u>	<u>6.7</u>	<u>5.4</u>	<u>3.3</u>	<u>.2</u>	<u>1.5</u>	<u>28.7</u>
TOTALS	Count	1,979	1,466	1,075	450	88	448	5,506
	%	35.9	26.6	19.5	8.2	1.6	8.1	100.0

TABLE 8. Demographic Distribution of Measured Females.

<u>Age</u>		<u>White</u>	<u>Black</u>	<u>Hispanic</u>	<u>Asian/ Pacific Island</u>	<u>American Indian/ Alaskan Native</u>	<u>Other</u>	<u>Row Total</u>
$\leq 20$	Count	322	296	53	23	10	48	752
	%	9.2	8.5	1.5	0.7	0.3	1.4	21.5
21-24	Count	363	338	106	32	20	69	928
	%	10.4	9.7	3.0	0.9	0.6	2.0	26.6
25-30	Count	360	399	107	43	10	54	973
	%	10.3	11.4	3.1	1.2	0.3	1.5	27.9
$\geq 31$	Count	343	330	71	42	8	44	838
	%	<u>9.8</u>	<u>9.5</u>	<u>2.0</u>	<u>1.2</u>	<u>0.2</u>	<u>1.3</u>	<u>24.0</u>
TOTALS	Count	1,388	1,363	337	140	48	215	3,491
	%	39.8	39.0	9.7	4.0	1.4	6.2	100.0

TABLE 9. Demographic Distribution of the U.S. Army, June 1988: Males.

<u>Age</u>		<u>White</u>	<u>Black</u>	<u>Hispanic</u>	<u>Asian/ Paci Isl</u>	<u>Am Ind/ Alas Nat</u>	<u>Other</u>	<u>Row Total</u>
$\leq 20$	Count	84,420	25,280	3,926	1,374	590	1,951	117,541
	%	12.651	3.788	0.588	0.206	0.088	0.292	17.613
21-24	Count	119,801	46,365	6,056	2,284	916	3,424	178,846
	%	17.953	6.948	0.908	0.342	0.137	0.513	26.801
25-30	Count	103,010	51,420	7,348	2,550	630	4,038	168,996
	%	15.437	7.706	1.101	0.382	0.094	0.605	25.325
$\geq 31$	Count	134,581	49,754	8,632	4,041	884	4,023	201,915
	%	<u>20.168</u>	<u>7.456</u>	<u>1.294</u>	<u>0.606</u>	<u>0.132</u>	<u>0.603</u>	<u>30.259</u>
TOTALS	Count	441,812	172,819	25,962	10,249	3,020	13,436	667,298
	%	66.209	25.898	3.891	1.536	0.451	2.013	99.998*

\* Due to rounding.

TABLE 10. Demographic Distribution of the U.S. Army, June 1988: Females.

<u>Age</u>		<u>White</u>	<u>Black</u>	<u>Hispanic</u>	<u>Asian/ Paci Isl</u>	<u>Am Ind/ Alas Nat</u>	<u>Other</u>	<u>Row Total</u>
$\leq 20$	Count	7,711	4,785	355	176	98	225	13,350
	%	9.463	5.872	0.436	0.216	0.121	0.276	16.384
21-24	Count	12,607	10,185	578	299	195	479	24,343
	%	15.471	12.499	0.709	0.367	0.239	0.588	29.873
25-30	Count	12,253	12,232	681	347	119	495	26,127
	%	15.040	15.011	0.836	0.426	0.146	0.607	32.066
$\geq 31$	Count	9,530	6,821	503	364	95	353	17,666
	%	<u>11.695</u>	<u>8.371</u>	<u>0.617</u>	<u>0.447</u>	<u>0.117</u>	<u>0.433</u>	<u>21.680</u>
TOTALS	Count	42,101	34,023	2,117	1,186	507	1,552	81,486
	%	51.669	41.753	2.598	1.456	0.623	1.904	100.003*

\* Due to rounding.

The size of the working data base was set by the sample cell with the lowest percentage relative to that cell's percentage in the June 1988 Army. In identifying that lowest cell, the sample cells with low subject frequencies (e.g. American Indian/Alaskan Native) were eliminated from consideration immediately. Although there are relatively few measured subjects in those cells they nevertheless represent larger proportions of the whole than do their counterparts in the Army population. That is, there are only 12 American Indian males over the age of 31 among the measured males (see Table 7). This represents 0.2 percent of the total measured sample. Yet, in the current U.S. Army American Indian males of this age represent only 0.132 percent of the total Army population (see Table 9).

For females, the most divergent proportions show up among White subjects--specifically among White females aged 25-30. That cell was identified by calculating the relative cell frequencies for each cell as shown in Table 11 below:

TABLE 11. Calculation of Relative Cell Frequencies for White Females.

<u>Age</u>	<u>A</u> <u>Measured</u> <u>Sample*</u>	<u>B</u> <u>1988</u> <u>Army</u>	<u>C</u> <u>A/B</u>
	%	%	
≤ 20	9.265	9.463	97.9
21-24	10.686	15.471	69.1
25-30	10.253	15.040	68.2
≥ 31	9.049	11.695	77.4

Column A indicates the relative frequencies of individuals in these categories in the measured data pool. Column B lists the relative frequency of each cell in the June 1988 Army. Column C is created by dividing the values in Column A by the values in Column B. When these calculations were carried out for all cells, the lowest value thus calculated identified the cell to be used to set the size for the working data base. In the case of the females, the lowest value for Column C was found for White females, aged 25-30.

The size of the working data base for females was calculated using the number of individuals with complete anthropometric data in that cell, 332\*, setting that value equal to 15.04% (from Column B or Table 10) and calculating the 100% value, which is the size of the total working data base. The size of the working data base for females would be approximately 2,207.

Calculating the size of each cell in the working data base was a simple matter of applying the percentages from Table 10 to the total size of 2,207. The resulting cell sizes for females are shown in Table 12.

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\* These figures differ from those found on Table 8 because, for this purpose, subjects who, for one reason or another, were found to have data points (other than crinion and interpupillary dimensions) missing were eliminated from consideration. Subjects with missing crinion and interpupillary data were retained so as not to truncate the distribution (see explanation on page 63).

TABLE 12. Female Working Data Base Cell Size.

(n=2,208)						
<u>Age</u>	<u>White</u>	<u>Black</u>	<u>Hispanic</u>	<u>Asian/ Paci Isl</u>	<u>Am Ind/ Alas Nat</u>	<u>Other</u>
≤ 20	209	130	10	5	3	6
21-24	341	276	16	8	5	13
25-30	332	331	18	9	3	13
≥ 31	258	185	14	10	3	10

The total number of individuals in all cells is 2,208, which is different from the projected sample size of 2,207, due to the rounding which is necessary to eliminate "partial" individuals.

When the size of each cell in the working data base was determined, creation of the data base was a simple matter. A computer program was developed to select the required number of individuals with complete anthropometric data from each cell in the measured pool. A random number generator was used, and the program was structured in such a way that each individual in a given cell had an equal probability of being chosen. In the case of the White females aged 25-30, of course, every subject was selected. Because a random selection is made for the other cells, it is always possible, however unlikely, that a single creation of the working data base might contain an unusually large number of heavy or tall subjects. To guard against this possibility, we created seven working data bases and selected the one which had the middle mean for stature (of the seven stature means) and the middle mean for weight (of the seven weight means). Table 13 shows the means for stature and weight for the seven draws. Note that the means used are for the variables field stature and field weight, indicating those dimensions which were measured at the screening session before the subjects were selected for complete measurement. The asterisk indicates the draw which was chosen as the final working data base for females.

TABLE 13. Mean Stature and Weight for Female Working Data Base Selections.

<u>Draw</u>	<u>Stature Mean</u>	<u>Weight Mean</u>
	(cm)	(kg)
A	163.13	62.02
B	163.12	62.13
C	163.11	62.04
D*	163.08	62.08
E	163.07	62.01
F	163.06	62.09
G	163.00	62.16

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\* Selected draw



The final step in creating the working data base was to validate the selection. Validation was possible in the present survey because of the screened sample. One of the goals of the screened sample was that it should represent the total Army population in terms of overall body size, measured by stature and weight. To meet this goal, whole units from FORSCOM posts were screened; types of units were screened in proportion to their frequency in the Army. It was thought that screening entire units would guarantee the demographic representation needed to assure anthropometric representation. Thus, if the working data base were similar to the screening sample in its measures of overall body size, then we might assume that dimensions other than stature and weight would also be representative of the Army as a whole. As it happened, some of the screened units were not complete due to leave, temporary duty, or illness. As a result, the FORSCOM screening sample as a whole was not as demographically representative of the total Army as had been originally hoped for. While this did not compromise the ability of that sample to meet its primary goal, it did complicate efforts to use the screening sample as a gauge against which to measure the effectiveness of the working data base selection process.

The solution to the dilemma was to create a representative screening sample from the total screening sample. Exactly the same procedures as in the creation of the working data base were used, and FORSCOM screened individuals were randomly selected for appropriate cells to equal the demographic distribution of the June 1988 Army. As with the working data base, the sample was drawn seven times, and the middle draw (in terms of stature and weight) was selected as the one against which the working data base was compared. Table 14 shows the mean, standard deviation, and selected percentiles of the female working data base and the female comparison screening sample for stature. Table 15 shows similar values for weight.

TABLE 14. Female Working Data Base Compared to Female Screening Sample: Stature.

	<u>Working Data Base</u>		<u>Screening Sample</u>
	(cm)		(cm)
Mean	163.08		163.12
SD	6.37		6.32
	148.55	1st %ile	148.59
	150.36	2nd %ile	150.35
	152.91	5th %ile	152.92
	155.08	10th %ile	155.14
	158.69	25th %ile	158.83
	162.86	50th %ile	162.98
	167.28	75th %ile	167.28
	171.45	90th %ile	171.28
	173.94	95th %ile	173.70
	176.67	98th %ile	176.42
	178.39	99th %ile	178.21

TABLE 15. Female Working Data Base Compared to  
Female Screening Sample: Weight.

	<u>Working Data Base</u>		<u>Screening Sample</u>
	(kg)		(kg)
Mean	62.08		62.24
SD	8.33		8.28
	45.18	1st %ile	45.37
	46.94	2nd %ile	47.07
	49.61	5th %ile	49.73
	52.03	10th %ile	52.19
	56.27	25th %ile	56.50
	61.39	50th %ile	61.63
	67.13	75th %ile	67.27
	73.02	90th %ile	73.00
	76.93	95th %ile	76.81
	81.73	98th %ile	81.54
	85.19	99th %ile	85.00

It is clear from comparing the columns in both the stature and weight tables that the selection process for the female working data base worked extremely well. Note that not only are the means and standard deviations almost identical, but even the lowest and highest percentiles are very close. It is therefore quite safe to consider this data base as representative of the females in the Army as a whole.

The same general procedure was followed to create the male working data base, with a single exception. At the special request of the Army's aviation community, Fort Rucker was included among the posts at which data were collected. This resulted in a good set of anthropometric data around which designs for the aviation community can be made. The inclusion of the Fort Rucker subjects, however, increased the proportion of aviators in the measured sample well beyond their proportion in the Army as a whole.

Therefore, when the male working data base was drawn, it was drawn from a pool from which the Fort Rucker aviators were excluded. Similarly, when the working data base was validated against the screening sample, it was validated against a screening sample from which the Fort Rucker aviators were excluded. Aviators are represented in the working data base and in the screening data base without Fort Rucker data because aviation units at other posts were sampled in approximate proportion to their representation in the Army as a whole.

The male working data base size was set by the cell containing Whites whose age was  $\geq 31$  ( $n=357$ ). This figure is considerably smaller than the cell count shown in Table 7 and largely the result of deleting the Fort Rucker aviators. The data base size after rounding was 1,774, demographically distributed as shown in Table 16.

TABLE 16. Male Working Data Base Cell Size.

(n=1,774)

<u>Age</u>	<u>White</u>	<u>Black</u>	<u>Hispanic</u>	<u>Asian/ Pacific Island</u>	<u>American Indian/ Alaskan Native</u>	<u>Other</u>
≤ 20	224	67	10	4	2	5
21-24	318	123	16	6	2	9
25-30	273	136	19	7	2	11
≥ 31	357	132	23	11	6	11

The selection of the male working data base was validated in the same way as that of the female working data base. Table 17 shows selected statistics comparing field stature from the working data base with field stature from the male screening sample which was restructured to reflect June 1988 demographics, and from which the Fort Rucker sample was deleted. Table 18 shows the validation for field weight.

TABLE 17. Male Working Data Base Compared to Male Screening Sample: Stature.

	<u>Working Data Base</u>		<u>Screening Sample</u>
	(cm)		(cm)
Mean	175.88		175.75
SD	6.73		6.79
	160.57	1st %ile	160.15
	162.30	2nd %ile	162.08
	164.91	5th %ile	164.83
	167.25	10th %ile	167.19
	171.23	25th %ile	171.11
	175.79	50th %ile	175.58
	180.46	75th %ile	180.26
	184.66	90th %ile	184.62
	187.11	95th %ile	187.24
	189.75	98th %ile	190.13
	191.40	99th %ile	191.98

**TABLE 18. Male Working Data Base Compared to  
Male Screening Sample: Weight.**

	<u>Working Data Base</u>		<u>Screening Sample</u>
	(kg)		(kg)
Mean	78.75		78.60
SD	11.00		11.12
	55.46	1st %ile	56.63
	58.14	2nd %ile	58.51
	61.96	5th %ile	61.75
	65.29	10th %ile	64.94
	71.02	25th %ile	70.77
	77.99	50th %ile	77.78
	85.81	75th %ile	85.42
	93.52	90th %ile	93.11
	98.31	95th %ile	98.25
	103.72	98th %ile	104.70
	107.24	99th %ile	109.47

Note that, as in the case for the females, the working data base is representative of the restructured screening sample and, by extension, the Army as a whole.

#### Characteristics of the Working Data Base

Tables and figures at the end of this chapter (pages 45-52) show a number of characteristics of the working data base. Tables 19 and 20 show the distribution of duty location and military component in the working data base. Tables 21 and 22 show rank and grade, while Table 23 displays years of service. Note that Table 23 is based on complete years. Table 24 is a breakout by branch of service, and Tables 25 through 27 show listings of military occupation specialty (MOS) category, separated into enlisted, warrant officer, and officer groups.

Personal characteristics of the individuals in the working data base are shown beginning with Table 28, which shows a distribution by age at last birthday. Table 29, a listing of racial categories, should be viewed with Table 30, which shows the distribution of all the ethnic groups (self-identified) in the working data base. The birthplace of each individual is summarized in Table 31. Vision correction, and the eye used for sighting a weapon are covered in Tables 32 and 33, respectively. Handedness, as determined by preferred hand for writing or firing a weapon, is shown in Tables 34 and 35.

Each subject, before being measured for any dimension, was asked to estimate his/her height and weight. These data, when combined with measured stature and weight data, are useful in assessing the value of questionnaire surveys of body size. Selected summary statistics and percentiles for height and weight, both estimated and measured, are shown in Tables 36 and 37, respectively.

Both men and women tended to slightly overestimate their own height, judging by the mean values. The estimated male mean is 1.33 cm greater than the measured male mean. For weight, individuals in this survey underestimated their own weight, by 1.02 kg for males, and 1.31 kg for females.

The working data base is described anthropometrically in Chapters IV, V, and VI. The data collected on the entire measured sample remain available to the Army for use when demographic changes suggest the need for creating another working data base. At such time, a new technical report describing that working data base will be issued.

## THE SCREENED SAMPLE

The screened sample was designed to allow assessment of questions about overall body size differences between occupational subgroups within the army. For these questions, stature and weight data provide adequate anthropometric information. The critical aspect of sampling was to obtain access to appropriate groups so that they would be represented in the final screened sample.

The screened sample was acquired using two methods. The primary method, and that generally used at FORSCOM posts, was to call entire units to the survey site. The specific units called were chosen for their ability to furnish individuals in specific age and racial/ethnic categories, but the kinds and numbers of units called were determined by the frequency of that type of unit in the Army as a whole. The secondary method used in acquiring the screening sample was to roster selected individuals on the basis of their attachment to a certain unit and on their age and race. This approach was generally used at TRADOC posts, but was also used to supplement the unit screening at FORSCOM posts when individuals were unable to attend the screening session for their unit.

The result of this screening process was twofold. First, it provided a very broad occupational representation of the entire Army. Second, it contributed markedly to the success of the recruitment for the measured sample since large numbers of individuals were physically accessible at the start of each measuring session. In all, 25,811 subjects--19,214 males and 6,597 females--were screened. The data for these individuals include stature and weight as well as the full set of biographical survey information. A separate technical report on the screening sampling strategy and the sample itself is in preparation.

TABLE 19. Distribution by Duty Location.

<u>Fort</u>	<u>Females</u>		<u>Males</u>	
	<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
McClellan	66	3.0	64	3.6
Campbell	140	6.3	234	13.2
Bragg	270	12.2	266	15.0
Stewart	215	9.7	287	16.2
Ord	181	8.2	245	13.8
Lewis	229	10.4	286	16.1
Hood	417	18.9	369	20.8
Gordon	177	8.0	0	0.0
Jackson	192	8.7	0	0.0
Rucker	67	3.0	0	0.0
Dix	<u>254</u>	<u>11.5</u>	<u>23</u>	<u>1.3</u>
TOTALS	2,208	99.9	1,774	100.0

TABLE 20. Distribution by Military Component.

	<u>Females</u>		<u>Males</u>	
	<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
Regular Army	2,119	96.0	1,741	98.1
Army Reserve	86	3.9	30	1.7
Missing Data	<u>3</u>	<u>.1</u>	<u>3</u>	<u>.2</u>
TOTALS	2,208	100.0	1,774	100.0

TABLE 21. Distribution by Rank.

	Females		Males	
	<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
Private 1	84	3.8	49	2.8
Private 2	147	6.7	115	6.5
Private First Class	271	12.3	221	12.5
Specialist 4	686	31.1	455	25.6
Corporal	18	.8	22	1.2
Sergeant	381	17.3	283	16.0
Staff Sergeant	219	9.9	224	12.6
Sergeant First Class	55	2.5	128	7.2
First Sergeant	2	.1	19	1.1
Master Sergeant	6	.3	29	1.6
Sergeant Major	0	.0	6	.3
Command Sergeant Major	0	.0	1	.1
Warrant Officer 1	1	.0	14	.8
Warrant Officer 2	5	.2	39	2.2
Warrant Officer 3	1	.0	14	.8
Warrant Officer 4	0	.0	6	.3
Second Lieutenant	52	2.4	15	.8
First Lieutenant	104	4.7	54	3.0
Captain	112	5.1	49	2.8
Major	47	2.1	15	.8
Lieutenant Colonel	16	.7	10	.6
Colonel	0	.0	1	.1
Missing Data	<u>1</u>	<u>.0</u>	<u>5</u>	<u>.3</u>
TOTALS	2,208	100.0	1,774	100.0

TABLE 22. Distribution by Grade.

	Females		Males	
	<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
E1	82	3.7	50	2.8
E2	149	6.7	114	6.4
E3	271	12.3	221	12.5
E4	705	31.9	482	27.2
E5	382	17.3	283	16.0
E6	218	9.9	225	12.7
E7	55	2.5	127	7.2
E8	8	.4	48	2.7
E9	0	.0	7	.4
WO1	1	.0	14	.8
WO2	5	.2	39	2.2
WO3	1	.0	14	.8
WO4	0	.0	6	.3
O1	53	2.4	15	.8
O2	103	4.7	54	3.0
O3	112	5.1	49	2.8
O4	47	2.1	15	.8
O5	16	.7	10	.6
O6	<u>0</u>	<u>.0</u>	<u>1</u>	<u>.1</u>
TOTALS	2,208	99.9	1,774	100.1



TABLE 23. Distribution by Years of Service.

<u>Years Completed</u>	<u>Females</u>		<u>Males</u>	
	<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
0	331	15.0	179	10.1
1	371	16.8	268	15.1
2	331	15.0	215	12.1
3	213	9.6	206	11.6
4	146	6.6	110	6.2
5	102	4.6	81	4.6
6	109	4.9	71	4.0
7	103	4.7	66	3.7
8	117	5.3	55	3.1
9	92	4.2	41	2.3
10	63	2.9	54	3.0
11	52	2.4	51	2.9
12	37	1.7	49	2.8
13	38	1.7	38	2.1
14	32	1.4	52	2.9
15	16	.7	54	3.0
16	17	.8	39	2.2
17	17	.8	32	1.8
18	15	.7	32	1.8
19	4	.2	38	2.1
20	0	.0	13	.7
21	1	.0	9	.5
22	0	.0	6	.3
23	0	.0	6	.3
24	0	.0	4	.2
25	1	.0	0	.0
26	0	.0	3	.2
29	<u>0</u>	<u>.0</u>	<u>2</u>	<u>.1</u>
TOTALS	2,208	100.0	1,774	99.7

TABLE 24. Distribution by Branch of Service.

	Females		Males	
	<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
AG	37	1.7	0	.0
Air Defense Artillery	10	.5	65	3.7
Armor	7	.3	66	3.7
Aviation-Other	89	4.0	58	3.3
Aviation-Pilots	47	2.1	90	5.1
Band	6	.3	2	.1
Chemical	11	.5	46	2.6
Defense Language Ins	67	3.0	18	1.0
Dentac	4	.2	0	.0
Engineer	21	1.0	111	6.3
Field Artillery	0	.0	74	4.2
Finance	48	2.2	30	1.7
General Supply	26	1.2	18	1.0
Headquarters and Rep	300	13.6	126	7.1
Infantry	82	3.7	202	11.4
Maintenance	114	5.2	105	5.9
Meddac	406	18.4	22	1.2
Medical	129	5.8	159	9.0
Military Intelligence	90	4.1	91	5.1
Military Police	60	2.7	48	2.7
Ordnance	74	3.4	59	3.3
PSC	69	3.1	39	2.2
Quartermaster	45	2.0	18	1.0
Signal	212	9.6	81	4.6
Supply	63	2.9	41	2.3
Supply and Service	36	1.6	39	2.2
Supply and Transport	9	.4	5	.3
Tenant Units	15	.7	1	.1
Transportation	79	3.6	137	7.7
USAG	<u>52</u>	<u>2.4</u>	<u>23</u>	<u>1.3</u>
TOTALS	2,208	100.2	1,774	100.1

TABLE 25. Distribution by MOS of Enlisted Personnel.

<u>MOS Classification</u>	<u>MOS</u>	<u>Females</u>		<u>Males</u>	
		<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
Miscellaneous	0	8	.4	3	.2
Biological Sciences Asst	1	0	.0	1	.1
Band	2	7	.4	1	.1
Physical Activities Spec	3	4	.2	0	.0
Electronic Intelligence-Radio	5	6	.3	0	.0
Not Listed	7	1	.1	0	.0
Infantryman	11	0	.0	195	12.5
Combat Engineer	12	0	.0	47	3.0
Field Artillery	13	0	.0	53	3.4
Air Defense Artillery	16	2	.1	31	2.0
Armor Crew	19	0	.0	69	4.4
Pershing Electronics Repair	21	1	.1	0	.0
Missile Maintenance	24	0	.0	1	.1
Radar Repair	26	1	.1	0	.0
Defense Systems Maintenance	27	4	.2	4	.3
Communications/Electr Maint	29	13	.7	15	1.0
Communications/Electr Operation	31	114	6.1	92	5.9
Communications Equip Repair	32	1	.1	0	.0
Electron Warfare/Intercept Maint	33	1	.1	2	.1
Computer Repair	34	1	.1	0	.0
Electronic Equipment Maint	35	15	.8	11	.7
Telecommunications	36	28	1.5	14	.9
Automatic Test Equip Maint	39	6	.3	3	.2
Office Equip/Instrument Repair	41	1	.1	0	.0
Optical/Dental Lab Spec	42	3	.2	1	.1
Parachute Rigger/Repairer	43	10	.5	11	.7
Metal Worker	44	2	.1	4	.3
Armament Repair	45	6	.3	4	.3
Construction Engineering	51	3	.2	27	1.7
Electric Utility Maint	52	18	1.0	52	3.3
Chemical Operations	54	15	.8	45	2.9
Ordnance	55	8	.4	16	1.0
Miscellaneous	57	7	.4	9	.6
Construction Equipment Operation	62	4	.2	24	1.5
Combat Equipment Repair	63	105	5.6	139	8.9
Transportation	64	8	.4	16	1.0
Aircraft Tech Inspector	66	0	.0	4	.3
Helicopter Repair	67	8	.4	24	1.5
Aircraft Repair	68	8	.4	32	2.1
Misc Clerical	71	297	15.9	30	1.9
Telecommunications Operator	72	22	1.2	17	1.1
Finance	73	59	3.2	26	1.7
Automatic Data Processor	74	8	.4	3	.2
Personnel	75	200	10.7	49	3.1

TABLE 25. Continued

<u>MOS Classification</u>	<u>MOS</u>	<u>Females</u>		<u>Males</u>	
		<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
Supply	76	272	14.5	127	8.2
Petroleum and Water	77	28	1.5	30	1.9
Not Listed	78	1	.1	0	.0
Drafting and Illustrating	81	6	.3	1	.1
Surveyor	82	0	.0	1	.1
Photo Layout & Printing	83	1	.1	0	.0
Public Affairs/TV	84	2	.1	0	.0
Motor Transport Operator	88	73	3.9	100	6.4
Medical Specialist	91	257	13.7	93	6.0
Medical Lab Specialist	92	28	1.5	3	.2
Aviation Operation	93	17	.9	2	.1
Food Service	94	62	3.3	18	1.2
Military Police	95	41	2.2	46	3.0
Military Intelligence	96	9	.5	22	1.4
Military Intelligence	97	10	.5	4	.3
Electronic Warfare Operation	98	55	2.9	35	2.2
Missing	-	<u>3</u>	<u>.2</u>	<u>0</u>	<u>.0</u>
TOTALS		1,870	100.0	1,557	100.0

TABLE 26. Distribution by MOS of Warrant Officers.

<u>MOS Classification</u>	<u>MOS</u>	<u>Females</u>		<u>Males</u>	
		<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
Physician Asst	11	1	14.3	2	2.7
Health Care Delivery	15	0	.0	1	1.4
Food Service Tech	41	0	.0	1	1.4
Food Inspection Tech	51	1	14.3	0	.0
Helicopter Pilot	100	0	.0	1	1.4
Rotary Wing Pilot	152	0	.0	32	43.8
Rotary Wing Pilot	153	1	14.3	11	15.1
Rotary Wing Pilot	154	1	14.3	0	.0
Field Artillery Elect Maint	213	0	.0	1	1.4
Hawk Missile System Tech	223	0	.0	2	2.7
Communication Equip Rep Tech	286	0	.0	1	1.4
Telecommunication Tech	290	0	.0	1	1.4
Armament Repair Tech	421	0	.0	1	1.4
Engineer Equip Repair Tech	621	0	.0	2	2.7
Maintenance Tech	630	0	.0	6	8.2
Military Personnel Tech	711	0	.0	1	1.4
General Supply Tech	761	1	14.3	2	2.7
Support Supply Tech	762	0	.0	1	1.4
Armored Cavalry System Tech	915	0	.0	1	1.4
Air Drop Equip Tech	921	0	.0	2	2.7
CID Special Agent	951	0	.0	2	2.7
Interrogation Tech	973	0	.0	1	1.4
Traffic Analysis Tech	982	<u>2</u>	<u>28.6</u>	<u>1</u>	<u>1.4</u>
TOTALS		7	100.0	73	100.0

TABLE 27. Distribution by MOS of Commissioned Officers.

<u>MOS Classification</u>	<u>MOS</u>	<u>Females</u>		<u>Males</u>	
		<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
Combat Arms Immaterial	2	0	.0	1	.7
Infantry	11	0	.0	22	15.3
Armor	12	0	.0	10	6.9
Field Artillery	13	0	.0	6	4.2
Air Defense Artillery	14	6	1.8	7	4.9
Aviation	15	9	2.7	28	19.4
Corps of Engineer	21	4	1.2	4	2.8
Signal Corps	25	21	6.3	4	2.8
Military Police Corps	31	14	4.2	4	2.8
Military Intelligence	35	15	4.5	7	4.9
Personnel Management	41	2	.6	2	1.4
Adjutant General Corps	42	10	3.0	4	2.8
Finance Corps	44	8	2.4	0	.0
Research & Development	51	1	.3	1	.7
Legal	55	3	.9	1	.7
Chaplain	56	0	.0	1	.7
Medical Corps	60	7	2.1	1	.7
Medical Corps	61	2	.6	1	.7
Dental	63	0	.0	1	.7
Army Medical Specialist Corps	65	15	4.5	0	.0
Army Nurse Corps	66	137	41.4	2	1.4
Medical Service Corps	67	13	3.9	11	7.6
Medical Service Corps	68	6	1.8	2	1.4
Chemical Corps	74	4	1.2	8	5.6
Transportation Officer	88	1	.3	1	.7
Ordnance Corps	91	18	5.4	3	2.1
Quartermaster Corps	92	16	4.8	5	3.5
Transportation Corps	93	17	5.1	5	3.5
Missing	-	<u>2</u>	<u>.6</u>	<u>2</u>	<u>1.4</u>
TOTALS		331	100.0	144	100.0

TABLE 28. Distribution by Age.

<u>Age</u>	<u>Females</u>		<u>Males</u>	
	<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
17	0	.0	1	.1
18	47	2.1	27	1.5
19	132	6.0	128	7.2
20	184	8.3	156	8.8
21	155	7.0	133	7.5
22	149	6.7	141	7.9
23	176	8.0	98	5.5
24	179	8.1	102	5.7
25	151	6.8	100	5.6
26	142	6.4	94	5.3
27	133	6.0	65	3.7
28	103	4.7	70	3.9
29	103	4.7	59	3.3
30	74	3.4	60	3.4
31	64	2.9	61	3.4
32	82	3.7	56	3.2
33	64	2.9	62	3.5
34	62	2.8	42	2.4
35	41	1.9	51	2.9
36	43	1.9	44	2.5
37	33	1.5	42	2.4
38	19	.9	42	2.4
39	13	.6	36	2.0
40	19	.9	29	1.6
41	13	.6	28	1.6
42	5	.2	15	.8
43	4	.2	9	.5
44	5	.2	8	.5
45	4	.2	4	.2
46	4	.2	4	.2
47	2	.1	2	.1
48	1	.0	4	.2
49	1	.0	0	.0
50	1	.0	0	.0
51	<u>0</u>	<u>.0</u>	<u>1</u>	<u>.1</u>
TOTALS	2,208	99.9	1,774	99.9

TABLE 29. Distribution by Race.

	Females		Males	
	<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
White	1,140	51.6	1,172	66.1
Black	922	41.8	458	25.8
Hispanic	58	2.6	68	3.8
Asian/Pacific Island	32	1.4	28	1.6
American Indian/Alaskan	14	.6	12	.7
Mixed/Other	<u>42</u>	<u>1.9</u>	<u>36</u>	<u>2.0</u>
TOTALS	2,208	99.9	1,774	100.0



TABLE 30. Distribution by Ethnicity.

	Females		Males	
	<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
<u>ARABIAN</u>				
Arab	0	.0	1	.1
Iranian	1	.0	0	.0
Iraqi	0	.0	1	.1
Jordanian	0	.0	1	.1
Persian	1	.0	0	.0
Syrian	0	.0	1	.1
<u>ASIAN</u>				
Asian American	1	.0	4	.2
Chinese	1	.0	2	.1
East Indian	0	.0	1	.1
Filipino	16	.7	9	.5
Hindu	0	.0	1	.1
Japanese	7	.3	6	.3
Korean	1	.0	3	.2
Vietnamese	1	.0	2	.1
<u>CARIBBEAN ISLANDERS</u>				
Antiguan	0	.0	1	.1
Barbadian	1	.0	2	.1
Cuban	1	.0	2	.1
Dominican	2	.1	0	.0
Jamaican	11	.5	4	.2
Puerto Rican	19	.9	27	1.5
Santo Domingan	1	.0	0	.0
Trinidadian	2	.1	0	.0
Virgin Islander	1	.0	0	.0
West Indian	18	.8	4	.2
<u>CENTRAL AND SOUTH AMERICAN</u>				
Argentinian	1	.0	0	.0
Chicano	0	.0	1	.1
Colombian	2	.1	2	.1
Ecuadoran	1	.0	0	.0
Guyanese	1	.0	1	.1
Hispanic American	9	.4	7	.4
Mexican American	23	1.0	27	1.5
Nicaraguan	0	.0	1	.1
Panamanian	4	.2	1	.1

TABLE 30. Continued

	Females		Males	
	<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
<u>EUROPEAN</u>				
Armenian	1	.0	0	.0
Austrian	1	.0	1	.1
Belgian	1	.0	1	.1
Croatian	0	.0	1	.1
Crucian	1	.0	0	.0
Czech	9	.4	2	.1
Danish	3	.1	1	.1
Dutch	9	.4	7	.4
English	31	1.4	61	3.4
European	6	.3	2	.1
Finnish	3	.1	2	.1
French	21	1.0	25	1.4
German	168	7.6	143	8.1
Greek	3	.1	2	.1
Hungarian	3	.1	6	.3
Irish	80	3.6	81	4.6
Italian	34	1.5	24	1.4
Lithuanian	2	.1	0	.0
Norwegian	9	.4	9	.5
Polish	23	1.0	10	.6
Portuguese	1	.0	3	.2
Russian	0	.0	2	.1
Scandinavian	10	.5	5	.3
Scots	6	.3	18	1.0
Scots-Irish	8	.4	10	.6
Sicilian	1	.0	1	.1
Slovak	1	.0	0	.0
Spanish	1	.0	1	.1
Swedish	10	.5	11	.6
Swiss	1	.0	0	.0
Ukranian	0	.0	1	.1
Welsh	2	.1	2	.1
Yugoslavian	1	.0	1	.1
<u>MIXED/OTHER</u>				
Black English	1	.0	0	.0
Black German	0	.0	1	.1
French Puerto Rican	0	.0	1	.1
German Polynesian	1	.0	0	.0
Jewish	0	.0	1	.1
Portuguese German	1	.0	0	.0

TABLE 30. Continued

	Females		Males	
	<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
<u>NATIVE AMERICAN</u>				
Acoma	0	.0	1	.1
American Indian	1	.0	3	.2
Apache	0	.0	1	.1
Blackfoot Cherokee	1	.0	1	.1
Cherokee	1	.0	4	.2
Chippewa	1	.0	0	.0
Crow	1	.0	0	.0
Eskimo	0	.0	1	.1
Iroquois	1	.0	0	.0
Kiowa	0	.0	1	.1
Lumbee	2	.1	0	.0
Minominee	1	.0	0	.0
Native American	0	.0	1	.1
Navajo	3	.1	2	.1
Oneida Otoe	1	.0	0	.0
Pueblo	1	.0	0	.0
Sac and Fox	1	.0	0	.0
Sioux	2	.1	2	.1
<u>NORTH AMERICAN, NOT NATIVE AMERICAN</u>				
American	805	36.5	849	47.9
Black American	761	35.3	342	19.3
Canadian	1	.0	1	.1
Cajun	0	.0	1	.1
French Canadian	8	.4	2	.1
<u>PACIFIC ISLANDERS</u>				
Chomorro	0	.0	1	.1
Guamanian	3	.1	2	.1
Marshallese	0	.0	1	.1
Papago	0	.0	1	.1
Samoan	6	.3	3	.2
Missing	<u>10</u>	<u>.5</u>	<u>6</u>	<u>.3</u>
TOTALS	2,208	100.0	1,774	100.0

TABLE 31. Distribution by Birthplace.

	Females		Males	
	<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
Alabama	71	3.2	62	3.5
Alaska	3	.1	4	.2
Arizona	15	.7	11	.6
Arkansas	24	1.1	20	1.1
California	105	4.8	115	6.5
Colorado	20	.9	17	1.0
Connecticut	20	.9	9	.5
Delaware	7	.3	6	.3
District of Columbia	21	1.0	7	.4
Florida	84	3.8	76	4.3
Georgia	78	3.5	82	4.6
Hawaii	5	.2	12	.7
Idaho	2	.1	7	.4
Illinois	89	4.0	78	4.4
Indiana	47	2.1	41	2.3
Iowa	26	1.2	26	1.5
Kansas	17	.8	12	.7
Kentucky	33	1.5	28	1.6
Louisiana	52	2.4	28	1.6
Maine	17	.8	9	.5
Maryland	43	1.9	29	1.6
Massachusetts	37	1.7	29	1.6
Michigan	89	4.0	78	4.4
Minnesota	37	1.7	37	2.1
Mississippi	69	3.1	23	1.3
Missouri	38	1.7	31	1.7
Montana	10	.5	6	.3
Nebraska	22	1.0	12	.7
Nevada	6	.3	4	.2
New Hampshire	5	.2	5	.3
New Jersey	45	2.0	31	1.7
New Mexico	10	.5	5	.3
New York	139	6.3	112	6.3
North Carolina	109	4.9	73	4.1
North Dakota	9	.4	5	.3
Ohio	99	4.5	83	4.7
Oklahoma	10	.5	14	.8
Oregon	14	.6	16	.9
Pennsylvania	120	5.4	81	4.6
Rhode Island	5	.2	9	.5
South Carolina	71	3.2	41	2.3
South Dakota	15	.7	8	.5
Tennessee	41	1.9	35	2.0
Texas	88	4.0	72	4.1
Utah	6	.3	8	.5

TABLE 31. Continued

	Females		Males	
	<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
Vermont	4	.2	2	.1
Virginia	83	3.8	66	3.7
Washington	35	1.6	33	1.9
West Virginia	20	.9	20	1.1
Wisconsin	55	2.5	35	2.0
Wyoming	3	.1	2	.1
Africa	1	.0	1	.1
Asia	21	1.0	23	1.3
Canada	6	.3	4	.2
Central America	13	.6	9	.5
Europe	34	1.5	37	2.1
Pacific Islands	10	.5	8	.5
South America	5	.2	5	.3
West Indies	40	1.8	31	1.7
Not available	<u>5</u>	<u>.2</u>	<u>1</u>	<u>.1</u>
TOTALS	2,208	100.1	1,774	100.2

TABLE 32. Distribution by Vision Correction.

	Females		Males	
	<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
Neither Glasses nor				
Contacts	1,088	49.3	1,198	67.5
Prescription Glasses	685	31.0	473	26.7
Prescription Contacts	116	5.3	19	1.1
Both	315	14.3	81	4.6
Missing Data	<u>4</u>	<u>.2</u>	<u>3</u>	<u>.2</u>
TOTALS	2,208	100.1	1,774	100.1

TABLE 33. Distribution by Sighting - Weapon.

	Females		Males	
	<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
Right	1,688	76.4	1,467	82.7
Left	410	18.6	245	13.8
Either	103	4.7	60	3.4
Missing Data	<u>7</u>	<u>.3</u>	<u>2</u>	<u>.1</u>
TOTALS	2,208	100.0	1,774	100.0

TABLE 34. Distribution by Handedness - Writing.

	Females		Males	
	<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
Right	1,958	88.7	1,560	87.9
Left	226	10.2	202	11.4
Either	21	1.0	11	.6
Missing Data	<u>3</u>	<u>.1</u>	<u>1</u>	<u>.1</u>
TOTALS	2,208	100.0	1,774	100.0

TABLE 35. Distribution by Handedness - Weapon.

	Females		Males	
	<u>Frequency</u>	<u>Percent</u>	<u>Frequency</u>	<u>Percent</u>
Right	1,912	86.6	1,524	85.9
Left	258	11.7	192	10.8
Either	35	1.6	57	3.2
Missing Data	<u>3</u>	<u>.1</u>	<u>1</u>	<u>.1</u>
TOTALS	2,208	100.0	1,774	100.0

TABLE 36. Comparison of Estimated and Measured Height (in cm).

Females			Males	
<u>Estimated</u>	<u>Measured</u>		<u>Estimated</u>	<u>Measured</u>
164.74	163.08	Mean	177.25	175.88
6.69	6.37	Std Dev	7.33	6.73
1.24	.01	Kurtosis	.50	.07
.45	.15	Skewness	.30	.08
55.88	44.30	Range	66.04	54.60
200.66	187.00	Maximum	210.82	204.00
144.78	143.00	Minimum	144.78	150.00
149.86	148.60	1st %tile	160.02	161.07
149.86	150.30	2nd %tile	162.56	162.30
154.94	153.00	5th %tile	165.10	165.10
157.48	155.27	10th %tile	167.64	167.45
160.02	158.60	25th %tile	172.72	171.20
165.10	163.00	50th %tile	177.80	175.85
170.18	167.40	75th %tile	180.34	180.40
172.72	171.40	90th %tile	187.96	184.60
175.26	174.00	95th %tile	190.50	187.13
177.80	176.40	98th %tile	193.04	189.60
180.34	178.39	99th %tile	195.58	191.24

TABLE 37. Comparison of Estimated and Measured Weight (in kg).

Females			Males	
<u>Estimated</u>	<u>Measured</u>		<u>Estimated</u>	<u>Measured</u>
60.77	62.08	Mean	77.73	78.75
7.96	8.33	Std Dev	10.61	11.01
1.32	.57	Kurtosis	.50	.30
.38	.53	Skewness	.40	.40
86.64	55.80	Range	78.02	76.10
95.25	97.00	Maximum	126.10	124.00
8.62	42.00	Minimum	48.08	48.00
44.45	45.20	1st %tile	55.68	55.26
46.27	46.78	2nd %tile	57.61	57.61
48.99	49.71	5th %tile	61.24	61.80
51.26	52.01	10th %tile	64.86	65.50
55.34	56.20	25th %tile	70.31	71.20
60.33	61.40	50th %tile	77.11	78.00
65.77	67.10	75th %tile	83.92	85.60
71.49	72.70	90th %tile	91.63	93.10
74.84	77.00	95th %tile	97.07	98.66
79.38	81.79	98th %tile	101.83	104.13
82.55	84.68	99th %tile	104.33	107.30

## CHAPTER IV

### THE STANDARD MEASUREMENTS

One hundred thirty-two directly measured dimensions were obtained in this survey using traditional measuring instruments and methods. Where there was a choice of right or left, all measurements were taken on the right side unless otherwise specified or in the rare cases where an injury or anatomical abnormality made it necessary to measure on the left side. All measurements were made to the nearest millimeter. Weight was taken to the nearest 0.1 kilogram. Detailed illustrated instructions for making these measurements can be found in the *Measurer's Handbook*.<sup>10</sup>

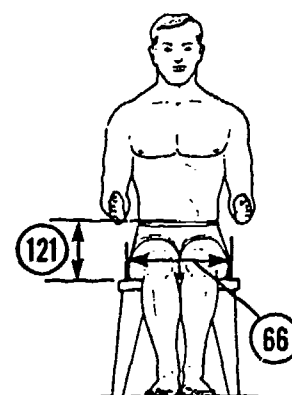
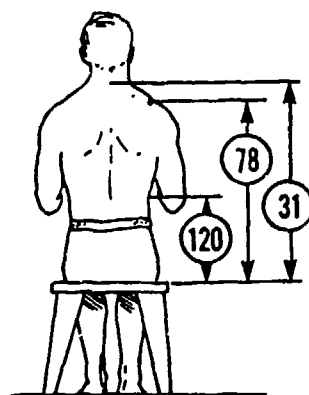
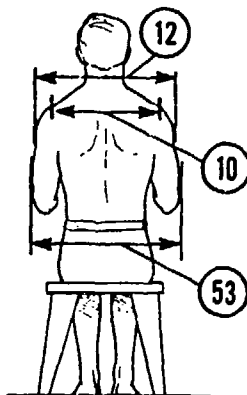
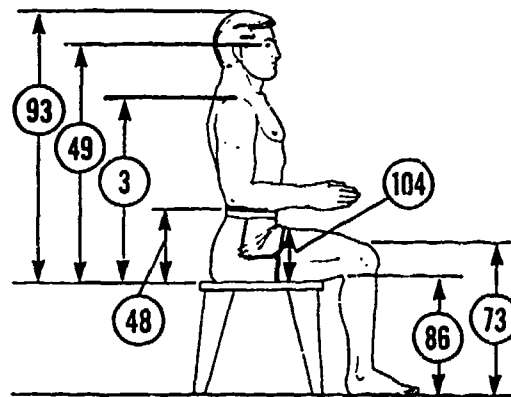
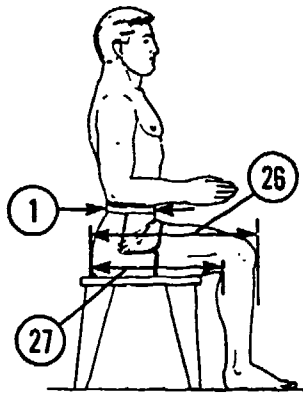
Summary statistics, including means, standard deviations, and percentile values for male and female subjects, are tabulated on the ensuing pages. Frequency tables for each dimension are also given. Users of these data will note .00 standard error (SE) values for some means and standard deviations. This occurs because values in these tables are not listed beyond two decimal places. It will also be noted that for crinion and interpupillary measurements the numbers of subjects are slightly below 2,208 females and 1,774 males. Crinion (the widow's peak) cannot be located on bald subjects or those with receding hairlines; thus measurements involving this landmark were not taken on some subjects.

In the case of Interpupillary Breadth, the eyes of a few subjects were too close together or too far apart to be accommodated by the device used to measure this variable. There are four missing values (three male and one female) for Interpupillary Breadth. These result from a limitation in the range of the pupillometer, which was capable of measuring from 52 mm to 76 mm. Two additional females have missing data due to medical conditions which prevented the measurement of Interpupillary Breadth. The three males had an Interpupillary Breadth which was larger than 76 mm, and the female had a value which was smaller than 52 mm. One male had a measured value of 78 mm, but this was measured in the traditional way, using a sliding caliper. This subject's value is recorded as 78 mm and is not considered missing. Nonmeasurable (i.e., missing) values at the ends of the distribution have a predictable effect on the summary statistics. The calculated female mean will be larger than the true mean, while the calculated male mean will be smaller than the true mean. The calculated standard deviation and variance for both sexes will be smaller than the true standard deviation and variance. The calculated female 1st percentile will be greater than the true 1st percentile, and the calculated male 99th percentile will be smaller than the true 99th percentile. Because the number of those missing is so small, however, the magnitude of these differences is quite small. In order to get an estimate of the magnitude, we recalculated the summary statistics after substituting 80 mm (the upper limit of the instrument plus one standard deviation) for the male missing values and 48 mm (the lower limit of the instrument minus one standard deviation) for the female missing value. The male mean increased by 0.02 mm, and the standard deviation by 0.05 mm. The percentiles were unchanged. The female mean decreased by 0.01 mm, while the standard deviation increased by 0.01 mm. The 1st percentile was decreased by 1 mm, but the remaining percentiles were unchanged. The practical effects of the limited range of the pupillometer are thus inconsequential.

A visual index, designed to assist the reader in locating particular dimensions whose names may be unfamiliar, appears on the following pages. Completing this section are the data pages, which include brief measurement descriptions, percentile tables, summary statistics, and frequency tables.



# VISUAL INDEX - THE STANDARD MEASUREMENTS



(1) ABDOMINAL EXTENSION DEPTH,  
SITTING

(3) ACROMIAL HEIGHT, SITTING

(10) BIACROMIAL BREADTH

(12) BIDELOID BREADTH

(26) BUTTOCK-KNEE LENGTH

(27) BUTTOCK-POPLITEAL LENGTH

(31) CERVICALE HEIGHT, SITTING

(48) ELBOW REST HEIGHT

(49) EYE HEIGHT, SITTING

(53) FOREARM-FOREARM BREADTH

(66) HIP BREADTH, SITTING

(73) KNEE HEIGHT, SITTING

(78) MIDSHOULDER HEIGHT, SITTING

(86) POPLITEAL HEIGHT

(93) SITTING HEIGHT

(104) THIGH CLEARANCE

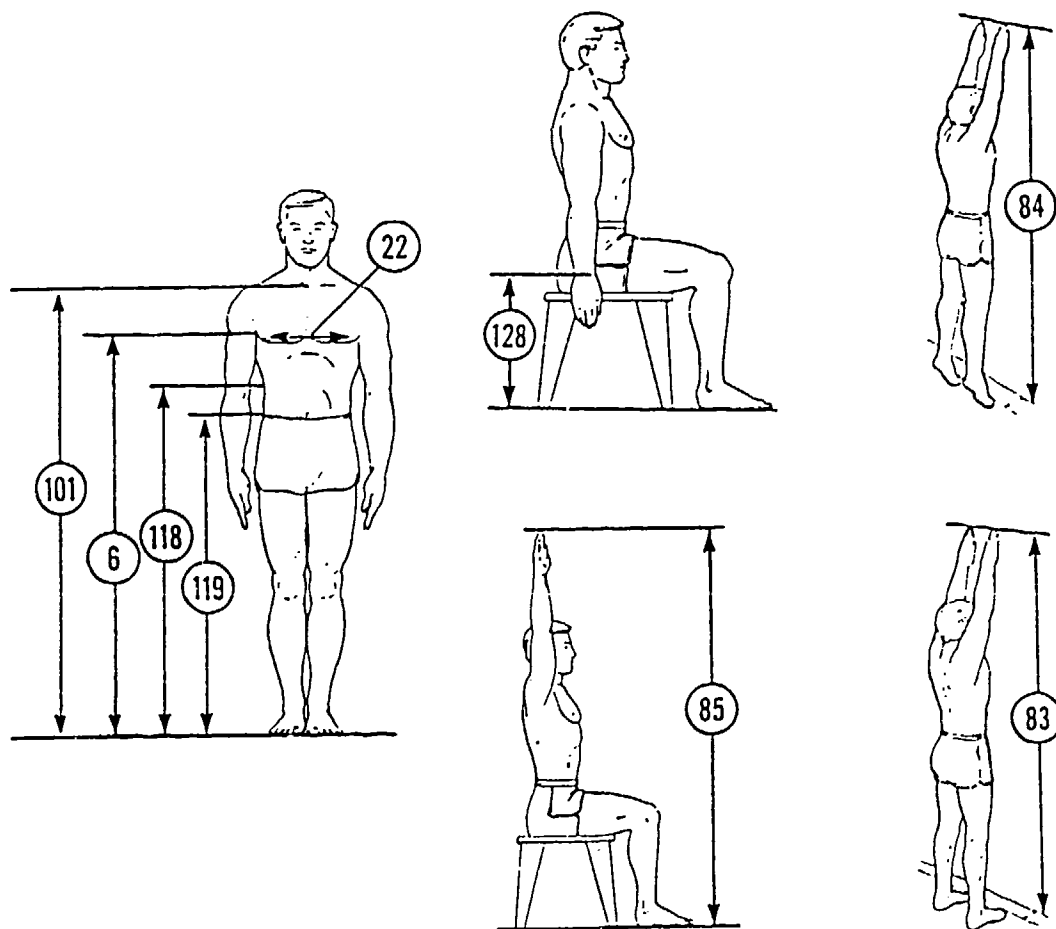
(120) WAIST HEIGHT, SITTING

(NATURAL INDENTATION)

(121) WAIST HEIGHT, SITTING

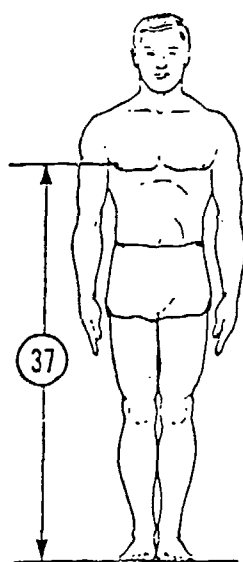
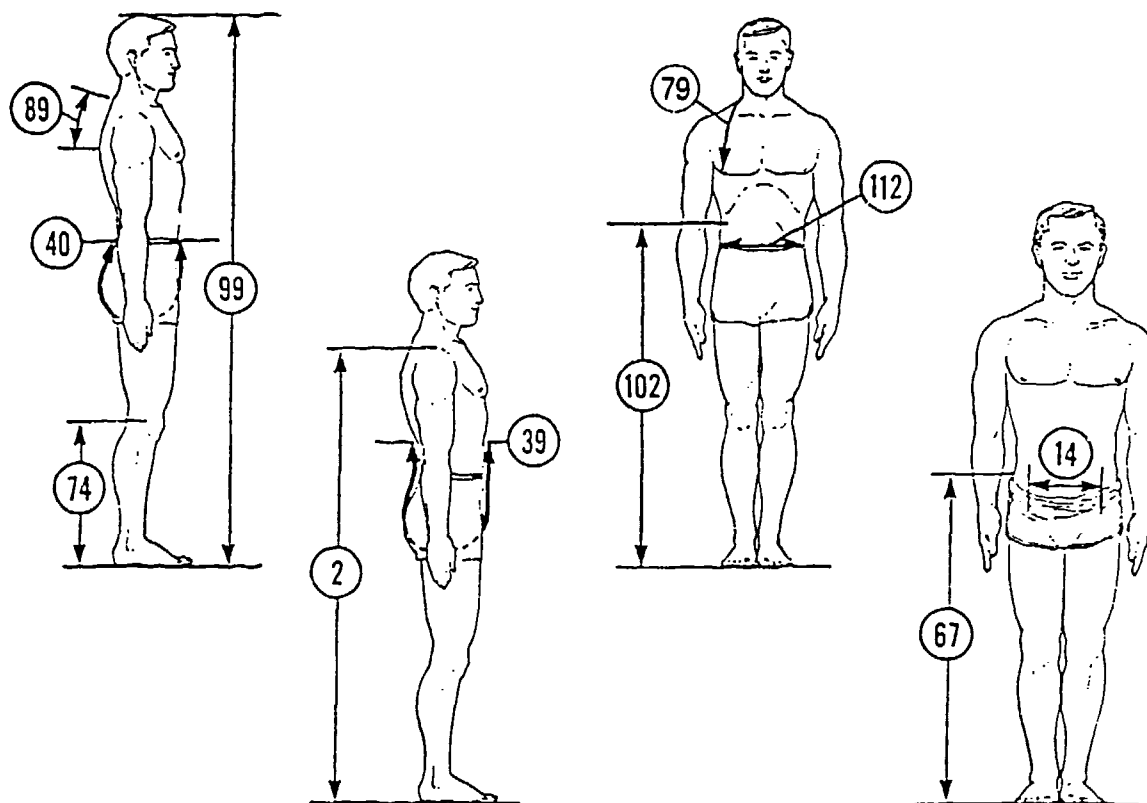
(OMPHALION)

# VISUAL INDEX - THE STANDARD MEASUREMENTS (Continued)



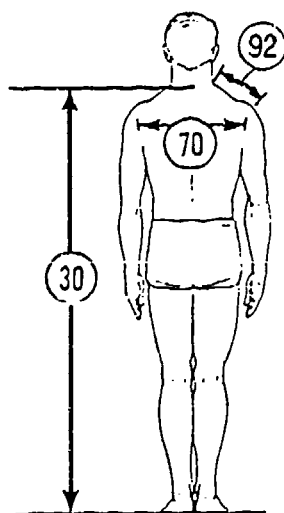
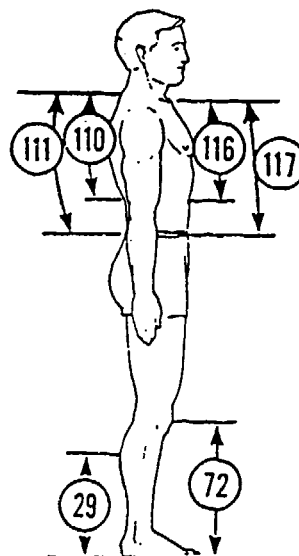
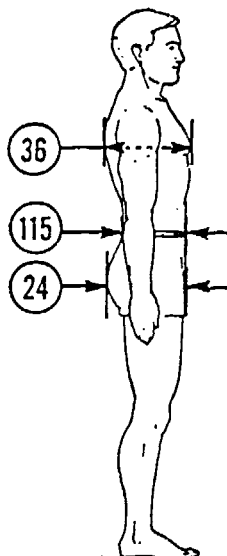
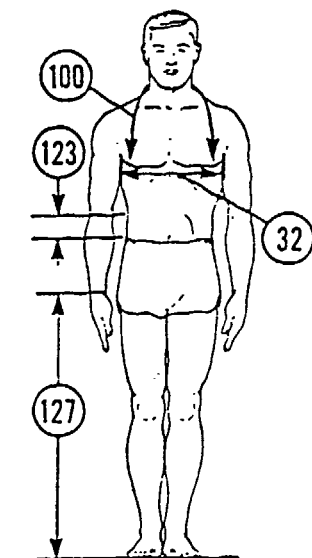
- (6) AXILLA HEIGHT
- (22) BUSTPOINT/THELION-BUSTPOINT/THELION BREADTH
- (83) OVERHEAD FINGERTIP REACH
- (84) OVERHEAD FINGERTIP REACH, EXTENDED
- (85) OVERHEAD FINGERTIP REACH, SITTING
- (101) SUPRASTERNAL HEIGHT
- (118) WAIST HEIGHT (NATURAL INDENTATION)
- (119) WAIST HEIGHT (OMPHALION)
- (128) WRIST HEIGHT, SITTING

# VISUAL INDEX - THE STANDARD MEASUREMENTS (Continued)



- (2) ACROMIAL HEIGHT
- (14) BISPINOUS BREADTH
- (37) CHEST HEIGHT
- (39) CROTCH LENGTH (NATURAL INDENTATION)
- (40) CROTCH LENGTH (OMPHALION)
- (67) ILIOCRISTALE HEIGHT
- (74) LATERAL FEMORAL EPICONDYLE HEIGHT
- (79) NECK-BUSTPOINT/THELION LENGTH
- (89) SCYE DEPTH
- (99) STATURE
- (102) TENTH RIB HEIGHT
- (112) WAIST BREADTH

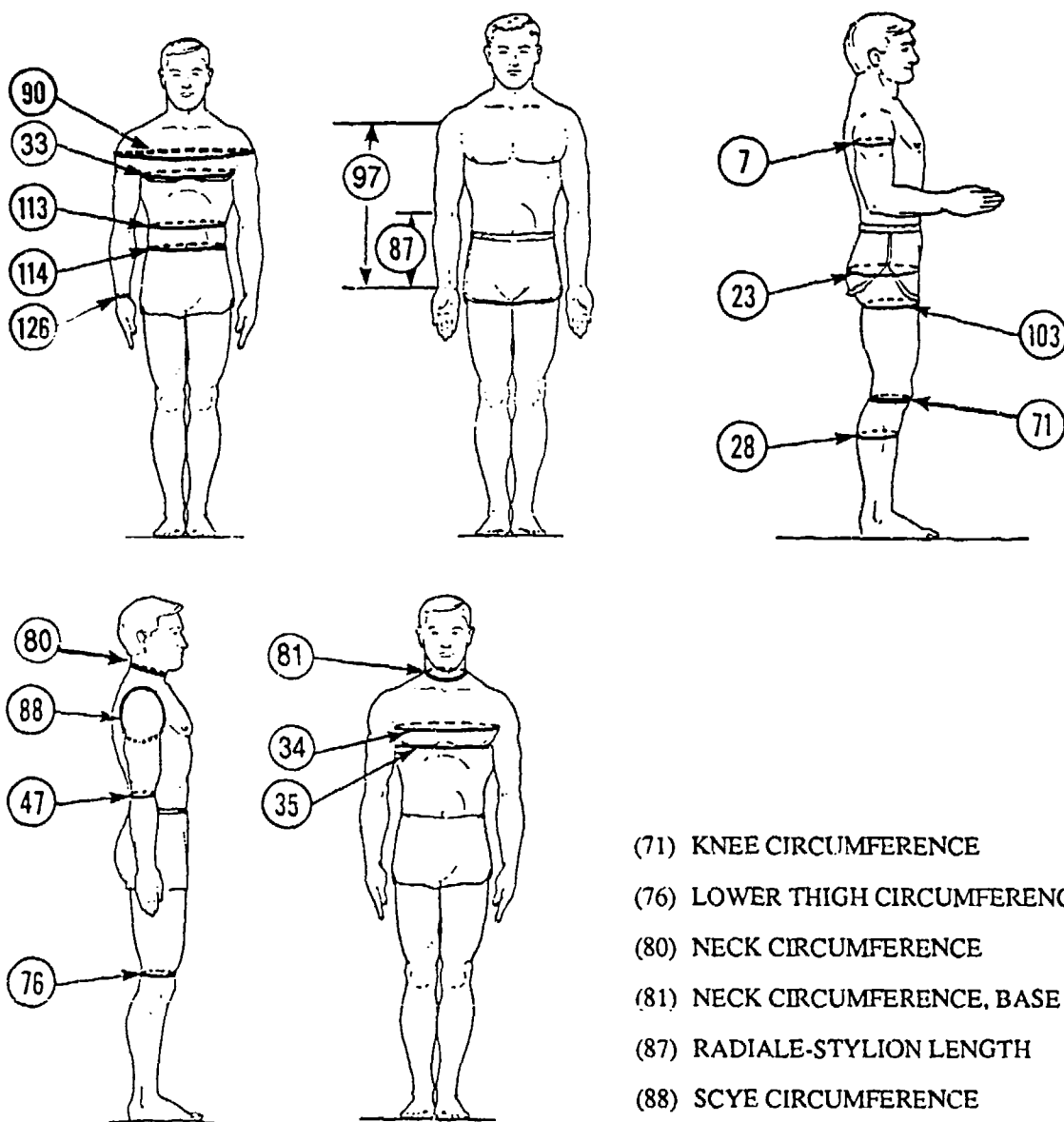
# VISUAL INDEX - THE STANDARD MEASUREMENTS (Continued)



- (24) BUTTOCK DEPTH
- (29) CALF HEIGHT
- (30) CERVICALE HEIGHT
- (32) CHEST BREADTH

- (36) CHEST DEPTH
- (70) INTERSCYE II
- (72) KNEE HEIGHT, MIDPATELLA
- (92) SHOULDER LENGTH
- (100) STRAP LENGTH
- (110) WAIST BACK LENGTH (NATURAL INDENTATION)
- (111) WAIST BACK LENGTH (OMPHALION)
- (115) WAIST DEPTH
- (116) WAIST FRONT LENGTH (NATURAL INDENTATION)
- (117) WAIST FRONT LENGTH (OMPHALION)
- (123) WAIST (NATURAL INDENTATION) TO WAIST (OMPHALION) LENGTH
- (127) WRIST HEIGHT

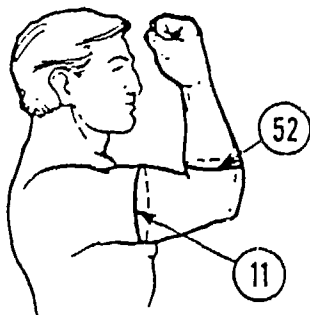
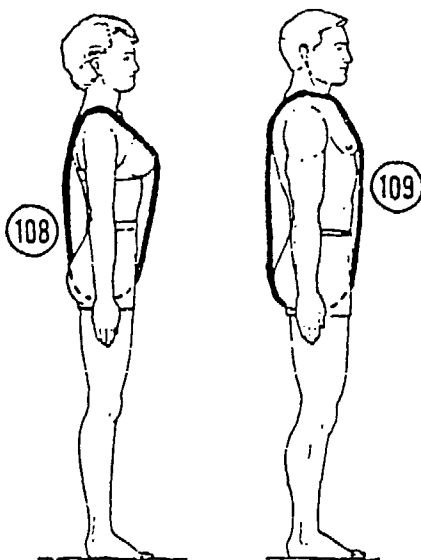
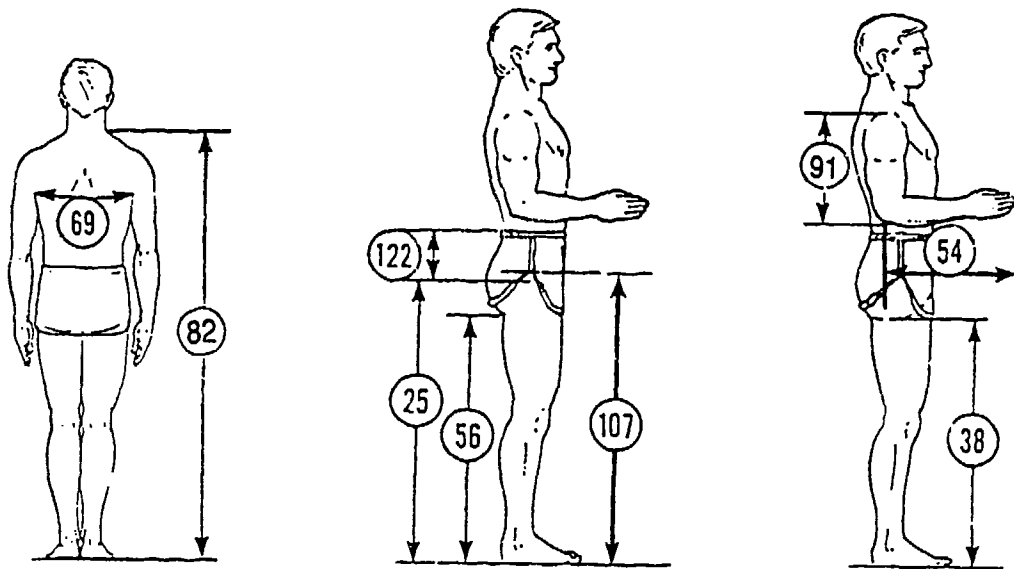
# VISUAL INDEX - THE STANDARD MEASUREMENTS (Continued)



- (7) AXILLARY ARM CIRCUMFERENCE
- (23) BUTTOCK CIRCUMFERENCE
- (28) CALF CIRCUMFERENCE
- (33) CHEST CIRCUMFERENCE
- (34) CHEST CIRCUMFERENCE AT SCYE
- (35) CHEST CIRCUMFERENCE BELOW BREAST
- (47) ELBOW CIRCUMFERENCE

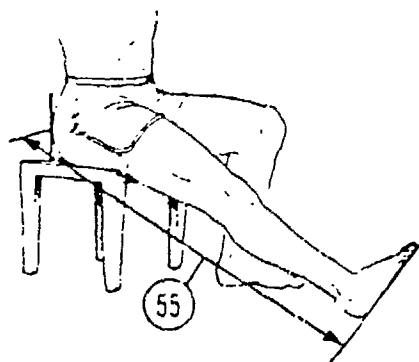
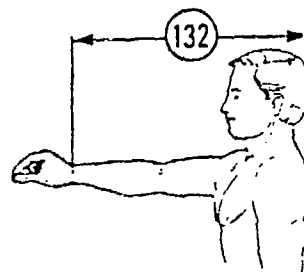
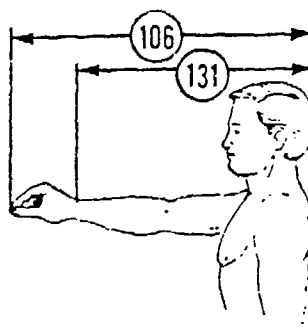
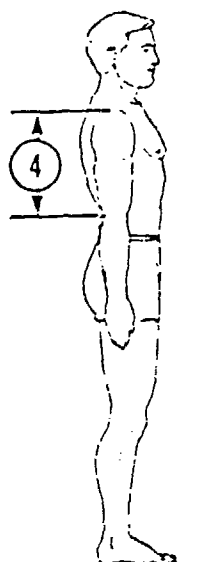
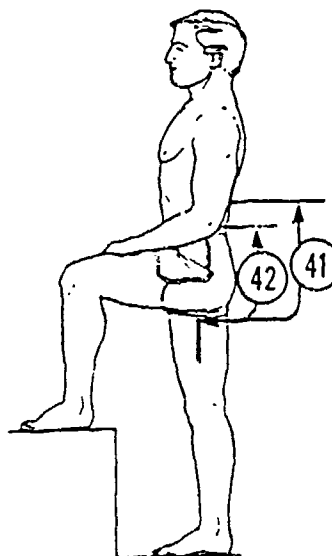
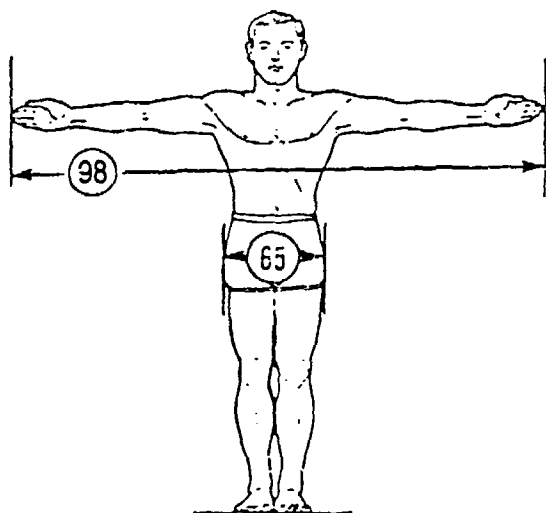
- (71) KNEE CIRCUMFERENCE
- (76) LOWER THIGH CIRCUMFERENCE
- (80) NECK CIRCUMFERENCE
- (81) NECK CIRCUMFERENCE, BASE
- (87) RADIALE-STYLION LENGTH
- (88) SCYE CIRCUMFERENCE
- (90) SHOULDER CIRCUMFERENCE
- (97) SLEEVE OUTSEAM
- (103) THIGH CIRCUMFERENCE
- (113) WAIST CIRCUMFERENCE  
(NATURAL INDENTATION)
- (114) WAIST CIRCUMFERENCE  
(OMPHALION)
- (126) WRIST CIRCUMFERENCE

# VISUAL INDEX - THE STANDARD MEASUREMENTS (Continued)



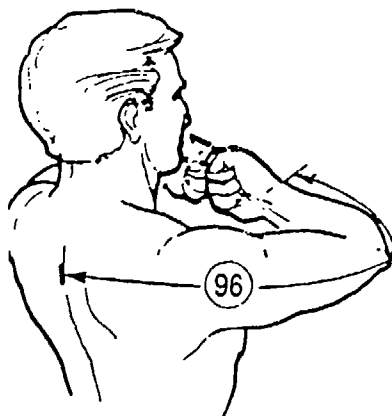
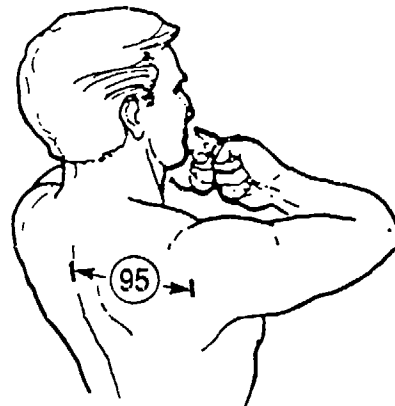
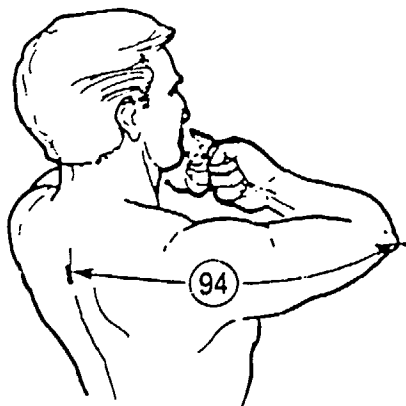
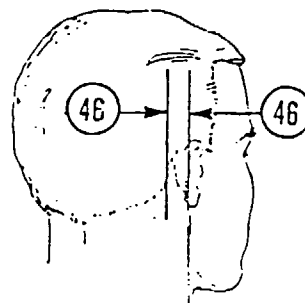
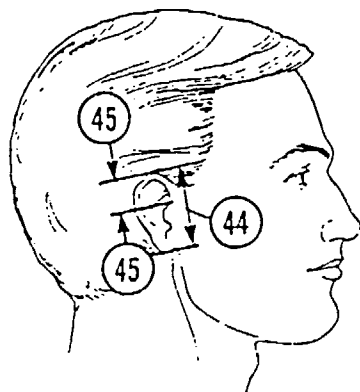
- (11) BICEPS CIRCUMFERENCE, FLEXED
- (25) BUTTOCK HEIGHT
- (38) CROTCH HEIGHT
- (52) FOREARM CIRCUMFERENCE, FLEXED
- (54) FOREARM-HAND LENGTH
- (56) GLUTEAL FURROW HEIGHT
- (69) INTERSCYE I
- (82) NECK HEIGHT, LATERAL
- (91) SHOULDER-ELBOW LENGTH
- (107) TROCHANTERION HEIGHT
- (108) VERTICAL TRUNK CIRCUMFERENCE (ASCC)
- (109) VERTICAL TRUNK CIRCUMFERENCE (USA)
- (122) WAIST-HIP LENGTH

# VISUAL INDEX - THE STANDARD MEASUREMENTS (Continued)



- (4) ACROMION-RADIALE LENGTH
- (41) CROTCH LENGTH, POSTERIOR  
(NATURAL INDENTATION)
- (42) CROTCH LENGTH, POSTERIOR (OMPHALION)
- (55) FUNCTIONAL LEG LENGTH
- (65) HIP BREADTH
- (98) SPAN
- (106) THUMB TIP REACH
- (131) WRIST-WALL LENGTH
- (132) WRIST-WALL LENGTH, EXTENDED

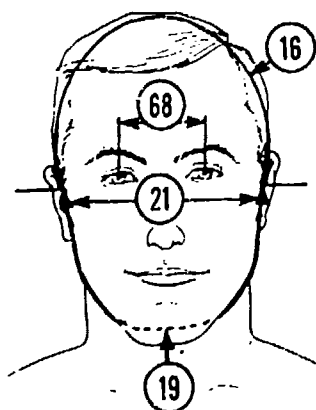
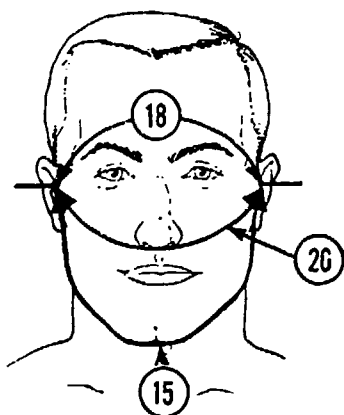
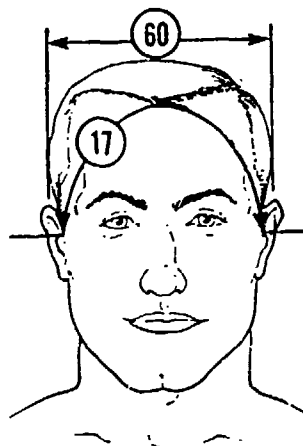
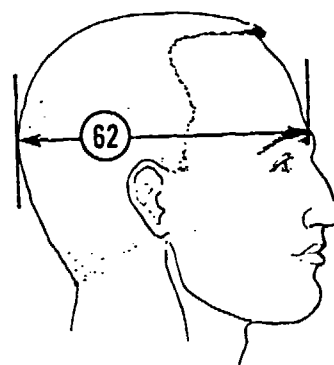
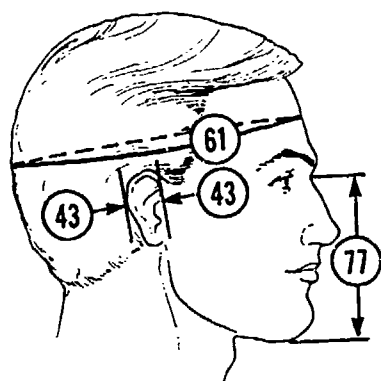
VISUAL INDEX - THE STANDARD MEASUREMENTS (Continued)



- (44) EAR LENGTH
- (45) EAR LENGTH ABOVE TRAGION
- (46) EAR PROTRUSION
- (94) SLEEVE LENGTH: SPINE-ELBOW
- (95) SLEEVE LENGTH: SPINE-SCYE
- (96) SLEEVE LENGTH: SPINE-WRIST

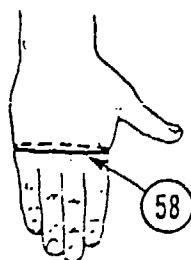
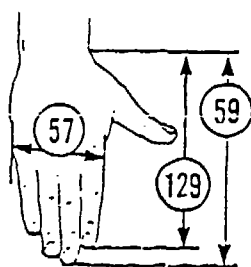
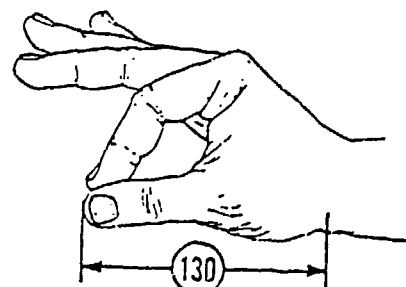
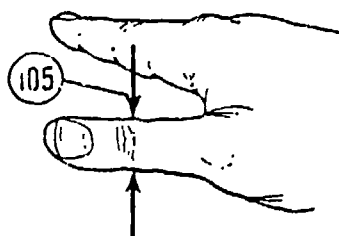
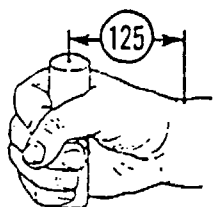
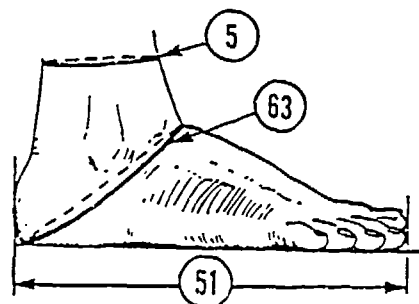
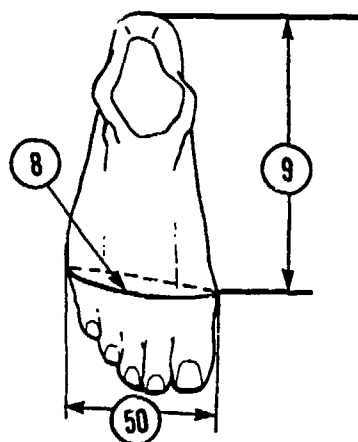
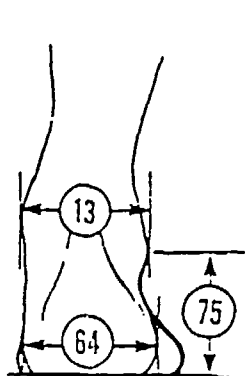


# VISUAL INDEX - THE STANDARD MEASUREMENTS (Continued)



- (15) BITRAGION CHIN ARC
- (16) BITRAGION CORONAL ARC
- (17) BITRAGION CRINION ARC
- (18) BITRAGION FRONTAL ARC
- (19) BITRAGION SUBMANDIBULAR ARC
- (20) BITRAGION SUBNASALE ARC
- (21) BIZYGOMATIC BREADTH
- (43) EAR BREADTH
- (60) HEAD BREADTH
- (61) HEAD CIRCUMFERENCE
- (62) HEAD LENGTH
- (68) INTERPUPILLARY BREADTH
- (77) MENTON-SELLION LENGTH

# VISUAL INDEX - THE STANDARD MEASUREMENTS (Continued)



(5) ANKLE CIRCUMFERENCE

(8) BALL OF FOOT CIRCUMFERENCE

(9) BALL OF FOOT LENGTH

(13) BIMALLEOLAR BREADTH

(50) FOOT BREADTH, HORIZONTAL

(51) FOOT LENGTH

(57) HAND BREADTH

(58) HAND CIRCUMFERENCE

(59) HAND LENGTH

(63) HEEL ANKLE CIRCUMFERENCE

(64) HEEL BREADTH

(75) LATERAL MALLEOLUS HEIGHT

(105) THUMB BREADTH

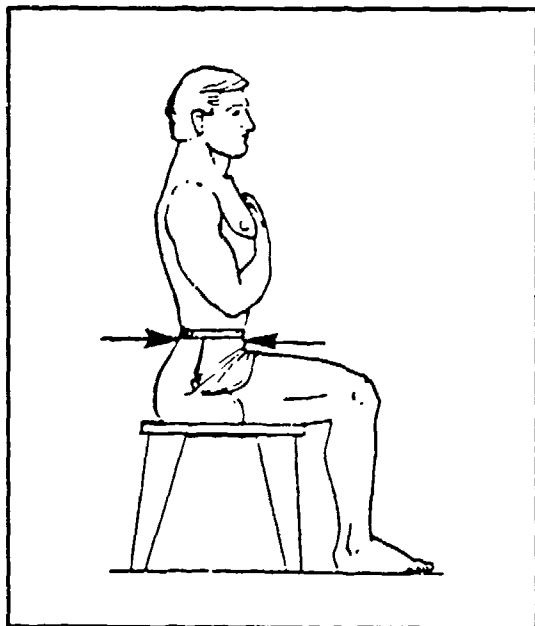
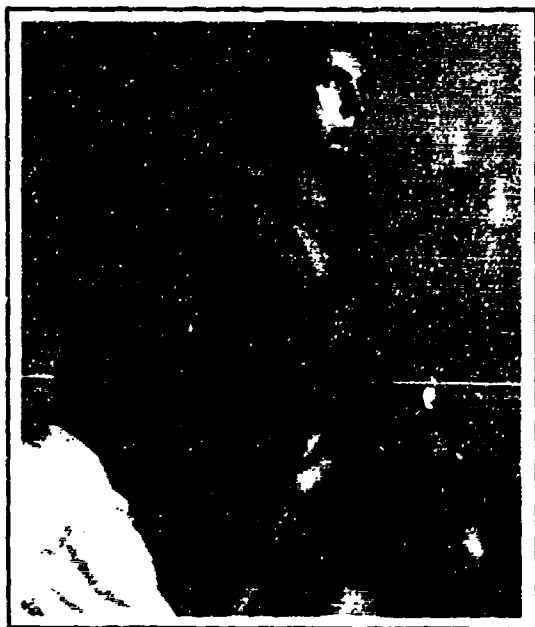
(125) WRIST-CENTER OF GRIP LENGTH

(129) WRIST-INDEX FINGER LENGTH

(130) WRIST-THUMB TIP LENGTH

# (1) ABDOMINAL EXTENSION DEPTH, SITTING

The horizontal distance between the anterior point of the abdomen and the back at the same level is measured with a beam caliper. The subject sits erect looking straight ahead. The measurement is made at the maximum point of quiet respiration.



## THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
17.31	6.82	1ST	18.63	7.33	
17.78	7.00	2ND	19.12	7.53	
18.07	7.11	3RD	19.43	7.65	
18.47	7.27	5TH	19.85	7.82	
19.11	7.52	10TH	20.54	8.09	
19.58	7.71	15TH	21.03	8.28	
19.96	7.86	20TH	21.45	8.45	
20.32	8.00	25TH	21.83	8.60	
20.65	8.13	30TH	22.19	8.74	
20.97	8.26	35TH	22.54	8.87	
21.28	8.38	40TH	22.88	9.01	
21.60	8.50	45TH	23.23	9.14	
21.92	8.63	50TH	23.58	9.28	
22.26	8.76	55TH	23.94	9.43	
22.61	8.90	60TH	24.33	9.58	
22.98	9.05	65TH	24.73	9.74	
23.39	9.21	70TH	25.18	9.91	
23.85	9.39	75TH	25.67	10.10	
24.37	9.59	80TH	26.23	10.33	
25.00	9.84	85TH	26.90	10.59	
25.81	10.16	90TH	27.76	10.93	
27.07	10.66	95TH	29.06	11.44	
27.89	10.98	97TH	29.88	11.77	
28.50	11.22	98TH	30.48	12.00	
29.45	11.59	99TH	31.37	12.35	

# ABDOMINAL EXTENSION DEPTH, SITTING

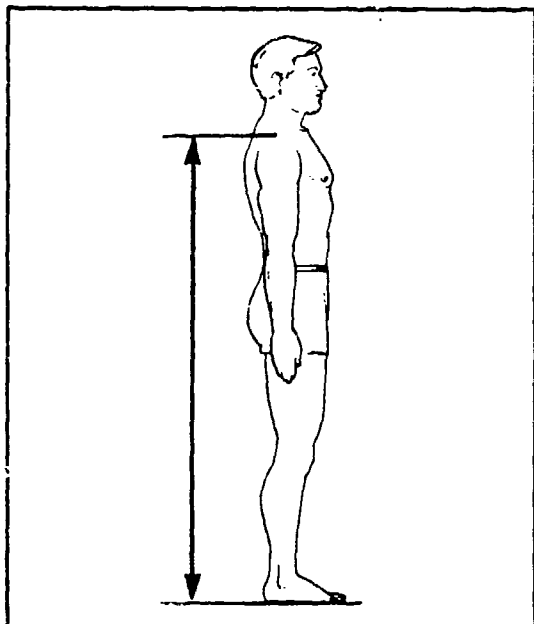
FEMALES			
CM		INCHES	
22.23	MEAN VALUE	8.75	
.06	SE(MEAN)	.02	
2.63	STD DEVIATION	1.04	
.04	SE(STD DEV)	.02	
15.30	MINIMUM	6.02	
31.60	MAXIMUM	12.44	
SYMMETRY---VETA I = .61			
KURTOSIS---VETA II = 3.32			
COEF. OF VARIATION = 11.9%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
23.91	MEAN VALUE	9.41	
.07	SE(MEAN)	.03	
2.83	STD DEVIATION	1.11	
.05	SE(STD DEV)	.02	
16.80	MINIMUM	6.61	
35.00	MAXIMUM	13.78	
SYMMETRY---VETA I = .57			
KURTOSIS---VETA II = 3.23			
COEF. OF VARIATION = 11.8%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	15.25 -	15.75						
0	.00	1	.05	15.75 -	16.25						
5	.23	6	.27	15.25 -	16.75						
11	.50	17	.77	16.75 -	17.25	2	.11	2	.11		
27	1.22	44	1.99	17.25 -	17.75	1	.06	3	.17		
36	1.63	80	3.62	17.75 -	18.25	6	.34	9	.51		
72	3.26	152	6.88	18.25 -	18.75	12	.68	21	1.18		
103	4.66	255	11.55	18.75 -	19.25	19	1.07	40	2.25		
123	5.57	378	17.12	19.25 -	19.75	33	1.86	73	4.11		
144	6.52	522	23.64	19.75 -	20.25	71	4.00	144	8.12		
165	7.47	687	31.11	20.25 -	20.75	61	3.44	205	11.56		
186	8.42	873	39.54	20.75 -	21.25	102	5.75	307	17.31		
166	7.52	1039	47.06	21.25 -	21.75	128	7.22	435	24.52		
160	7.25	1199	54.30	21.75 -	22.25	106	5.98	541	30.50		
167	7.56	1366	61.87	22.25 -	22.75	131	7.38	672	37.88		
145	6.57	1511	68.43	22.75 -	23.25	132	7.44	804	45.32		
134	6.07	1645	74.50	23.25 -	23.75	123	6.93	927	52.25		
117	5.30	1762	79.80	23.75 -	24.25	126	7.10	1053	59.36		
88	3.99	1850	83.79	24.25 -	24.75	109	6.14	1162	65.50		
66	2.99	1916	86.78	24.75 -	25.25	104	5.86	1266	71.36		
64	2.90	1980	89.67	25.25 -	25.75	73	4.11	1339	75.48		
44	1.99	2024	91.67	25.75 -	26.25	81	4.57	1420	80.05		
46	2.08	2070	93.75	26.25 -	26.75	64	3.61	1484	83.65		
40	1.81	2110	95.56	26.75 -	27.25	58	3.27	1542	86.92		
19	.86	2129	96.42	27.25 -	27.75	51	2.87	1593	89.80		
27	1.22	2156	97.64	27.75 -	28.25	41	2.31	1634	92.11		
15	.68	2171	98.32	28.25 -	28.75	36	2.03	1670	94.14		
13	.59	2184	98.91	28.75 -	29.25	28	1.58	1698	95.72		
7	.32	2191	99.23	29.25 -	29.75	20	1.13	1718	96.84		
2	.09	2193	99.32	29.75 -	30.25	16	.90	1734	97.75		
3	.14	2196	99.46	30.25 -	30.75	10	.56	1744	98.31		
9	.41	2205	99.86	30.75 -	31.25	10	.56	1754	98.87		
3	.14	2208	100.00	31.25 -	31.75	8	.45	1762	99.32		
				31.75 -	32.25	2	.11	1764	99.44		
				32.25 -	32.75	1	.06	1765	99.49		
				32.75 -	33.25	3	.17	1768	99.66		
				33.25 -	33.75	2	.11	1770	99.77		
				33.75 -	34.25	1	.06	1771	99.83		
				34.25 -	34.75	2	.11	1773	99.94		
				34.75 -	35.25	1	.06	1774	100.00		

## (2) ACROMIAL HEIGHT

The vertical distance between a standing surface and the acromion landmark on the tip of the right shoulder is measured with an anthropometer. The subject stands erect looking straight ahead. The heels are together with the weight distributed equally on both feet. The shoulders and upper extremities are relaxed. The measurement is made at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
119.82	47.17	1ST	129.86	51.13
121.63	47.89	2ND	131.62	51.82
122.70	48.31	3RD	132.71	52.25
124.09	48.85	5TH	134.16	52.82
126.12	49.65	10TH	136.35	53.68
127.45	50.18	15TH	137.83	54.26
128.49	50.59	20TH	139.00	54.72
129.40	50.95	25TH	140.02	55.13
130.22	51.27	30TH	140.93	55.49
130.99	51.57	35TH	141.78	55.82
131.72	51.86	40TH	142.60	56.14
132.44	52.14	45TH	142.39	56.45
133.16	52.43	50TH	144.18	56.76
133.90	52.72	55TH	144.97	57.07
134.65	53.01	60TH	145.77	57.39
135.43	53.32	65TH	146.61	57.72
136.27	53.65	70TH	147.50	58.07
137.19	54.01	75TH	148.46	58.45
138.23	54.42	80TH	149.53	58.87
139.44	54.90	85TH	150.77	59.36
140.97	55.50	90TH	152.32	59.97
143.20	56.38	95TH	154.56	60.85
144.59	56.93	97TH	155.95	61.40
145.57	57.31	98TH	156.93	61.79
146.99	57.87	99TH	158.38	62.35

# ACROMIAL HEIGHT

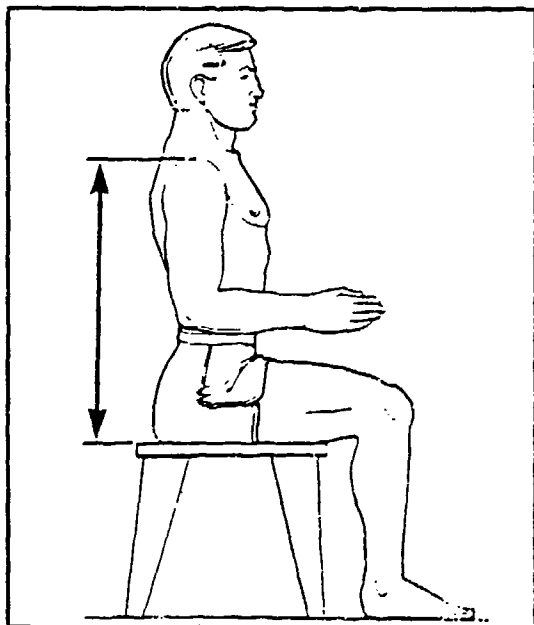
FEMALES			
CM		INCHES	
133.36	MEAN VALUE	52.50	
.12	SE (MEAN)	.05	
5.79	STD DEVIATION	2.28	
.09	SE (STD DEV)	.03	
113.90	MINIMUM	44.84	
156.50	MAXIMUM	61.61	
SYMMETRY---VETA I = .11			
KURTOSIS---VETA II = 3.01			
COEF. OF VARIATION = 4.3%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
144.25	MEAN VALUE	56.79	
.15	SE (MEAN)	.06	
6.20	STD DEVIATION	2.44	
.10	SE (STD DEV)	.04	
118.20	MINIMUM	46.54	
170.40	MAXIMUM	67.09	
SYMMETRY---VETA I = .04			
KURTOSIS---VETA II = 3.23			
COEF. OF VARIATION = 4.3%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	113.75 - 115.25		1	.06	1	.06		
2	.09	3	.14	115.25 - 116.75		0	.00	1	.06		
6	.27	9	.41	116.75 - 118.25		0	.00	1	.06		
13	.59	22	1.00	118.25 - 119.75		0	.00	1	.06		
20	.91	42	1.90	119.75 - 121.25		0	.00	1	.06		
22	1.00	64	2.90	121.25 - 122.75		0	.00	1	.06		
42	1.90	106	4.80	122.75 - 124.25		0	.00	1	.06		
81	3.67	187	8.47	124.25 - 125.75		1	.06	2	.11		
123	5.57	310	14.04	125.75 - 127.25		2	.11	4	.23		
178	8.06	488	22.10	127.25 - 128.75		6	.34	10	.56		
183	8.29	671	30.39	128.75 - 130.25		10	.56	20	1.13		
242	10.96	913	41.35	130.25 - 131.75		18	1.01	38	2.14		
193	8.74	1106	50.09	131.75 - 133.25		24	1.35	62	3.49		
211	9.56	1317	59.65	133.25 - 134.75		46	2.59	108	6.09		
212	9.60	1529	69.25	134.75 - 136.25		60	3.38	168	9.47		
190	8.61	1719	77.85	136.25 - 137.75		85	4.79	253	14.26		
150	6.79	1869	84.65	137.75 - 139.25		122	6.88	375	21.14		
112	5.07	1981	89.72	139.25 - 140.75		141	7.95	516	29.09		
83	3.76	2064	93.48	140.75 - 142.25		164	9.24	680	38.33		
54	2.45	2118	95.92	142.25 - 143.75		153	8.62	833	46.96		
39	1.77	2157	97.69	143.75 - 145.25		166	9.36	999	56.31		
26	1.18	2183	98.87	145.25 - 146.75		176	9.92	1175	66.23		
13	.59	2196	99.46	146.75 - 148.25		126	7.10	1301	73.34		
6	.27	2202	99.73	148.25 - 149.75		151	8.51	1452	81.85		
4	.18	2206	99.91	149.75 - 151.25		88	4.96	1540	86.81		
1	.05	2207	99.95	151.25 - 152.75		87	4.90	1627	91.71		
0	.00	2207	99.95	152.75 - 154.25		47	2.65	1674	94.36		
0	.00	2207	99.95	154.25 - 155.75		42	2.37	1716	96.73		
1	.05	2208	100.00	155.75 - 157.25		28	1.58	1744	98.31		
				157.25 - 158.75		17	.96	1761	99.27		
				158.75 - 160.25		4	.23	1765	99.49		
				160.25 - 161.75		3	.17	1768	99.66		
				161.75 - 163.25		3	.17	1771	99.83		
				163.25 - 164.75		0	.00	1771	99.83		
				164.75 - 166.25		1	.06	1772	99.89		
				166.25 - 167.75		0	.00	1772	99.89		
				167.75 - 169.25		1	.06	1773	99.94		
				169.25 - 170.75		1	.06	1774	100.00		

### (3) ACROMIAL HEIGHT, SITTING

The vertical distance between a sitting surface and the acromion landmark on the tip of the right shoulder is measured with an anthropometer. The subject sits erect looking straight ahead. The shoulders and upper arms are relaxed and the forearms and hands are extended forward horizontally with the palms facing each other. The measurement is made at the maximum point of quiet respiration.



#### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
49.24	19.38	1ST	52.52	20.68	
49.88	19.64	2ND	53.49	21.06	
50.31	19.81	3RD	54.08	21.29	
50.91	20.04	5TH	54.85	21.59	
51.87	20.42	10TH	55.98	22.04	
52.54	20.69	15TH	56.73	22.33	
53.09	20.90	20TH	57.31	22.56	
53.56	21.09	25TH	57.81	22.76	
53.99	21.26	30TH	58.25	22.93	
54.39	21.41	35TH	58.66	23.10	
54.77	21.56	40TH	59.05	23.25	
55.14	21.71	45TH	59.43	23.40	
55.51	21.85	50TH	59.80	23.54	
55.88	22.00	55TH	60.17	23.69	
56.25	22.15	60TH	60.55	23.84	
56.64	22.30	65TH	60.94	23.99	
57.05	22.46	70TH	61.35	24.15	
57.50	22.64	75TH	61.79	24.33	
57.99	22.83	80TH	62.29	24.52	
58.57	23.06	85TH	62.86	24.75	
59.29	23.34	90TH	63.58	25.03	
60.36	23.76	95TH	64.63	25.44	
61.05	24.03	97TH	65.28	25.70	
61.55	24.23	98TH	65.75	25.89	
62.33	24.54	99TH	66.45	26.16	

# ACROMIAL HEIGHT, SITTING

FEMALES			
CM		INCHES	
55.55	MEAN VALUE	21.87	
.06	SE (MEAN)	.02	
2.86	STD DEVIATION	1.13	
.04	SE (STD DEV)	.02	
46.40	MINIMUM	18.27	
66.40	MAXIMUM	26.14	
SYMMETRY---VETA I = .07			
KURTOSIS---VETA II = 2.86			
COEF. OF VARIATION = 5.2%			
NUMBER OF SUBJECTS = 2208			

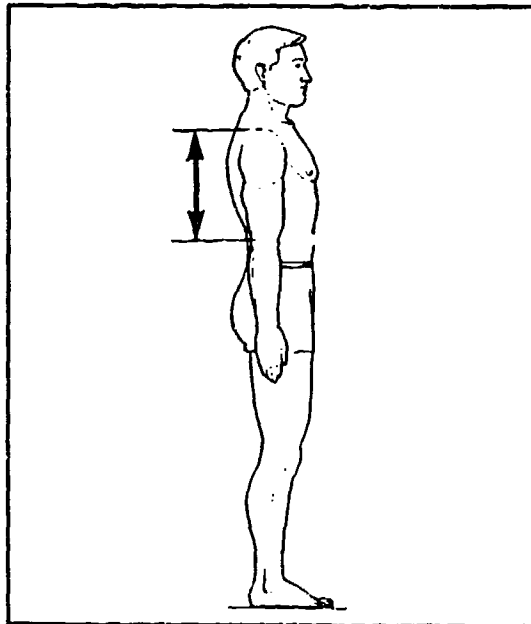
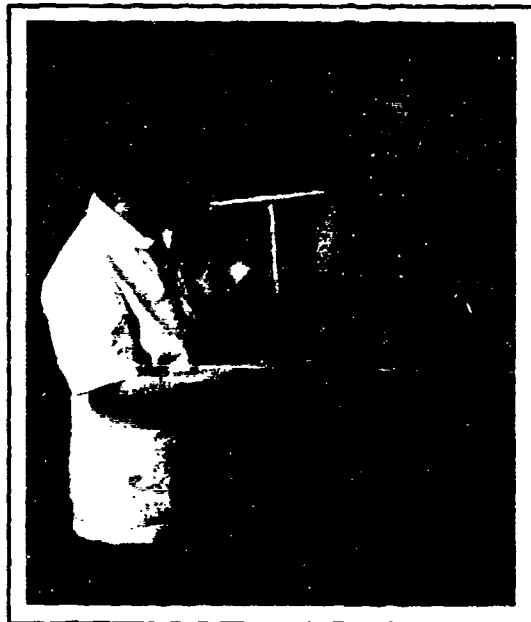
MALES			
CM		INCHES	
59.78	MEAN VALUE	23.53	
.07	SE (MEAN)	.03	
2.96	STD DEVIATION	1.16	
.05	SE (STD DEV)	.02	
50.10	MINIMUM	19.72	
69.50	MAXIMUM	27.36	
SYMMETRY---VETA I = -.06			
KURTOSIS---VETA II = 2.91			
COEF. OF VARIATION = 4.9%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
2	.09	2	.09	46.25 - 46.75		1	.06	1	.06		
0	.00	2	.09	46.75 - 47.25		0	.00	1	.06		
3	.14	5	.23	47.25 - 47.75		1	.06	2	.11		
3	.14	8	.36	47.75 - 48.25		2	.11	4	.23		
7	.32	15	.68	48.25 - 48.75		8	.45	12	.68		
7	.32	22	1.00	48.75 - 49.25		10	.56	22	1.24		
13	.59	35	1.59	49.25 - 49.75		12	.68	34	1.92		
31	1.40	66	2.99	49.75 - 50.25		11	.62	45	2.54		
29	1.31	95	4.30	50.25 - 50.75		8	.45	53	2.99		
52	2.36	147	6.66	50.75 - 51.25		27	1.52	80	4.51		
59	2.67	206	9.33	51.25 - 51.75		36	2.03	116	6.54		
70	3.17	276	12.50	51.75 - 52.25		38	2.14	154	8.68		
95	4.30	371	16.80	52.25 - 52.75		52	2.93	206	11.61		
88	3.99	459	20.79	52.75 - 53.25		63	3.55	269	15.16		
130	5.89	589	26.68	53.25 - 53.75		80	4.51	349	19.67		
143	6.48	732	33.15	53.75 - 54.25		88	4.96	437	24.63		
161	7.29	893	40.44	54.25 - 54.75		104	5.86	541	30.50		
132	5.98	1025	46.42	54.75 - 55.25		106	5.98	647	36.47		
154	6.97	1179	53.40	55.25 - 55.75		106	5.98	753	42.45		
146	6.61	1325	60.01	55.75 - 56.25		112	6.31	865	48.76		
148	6.70	1473	66.71	56.25 - 56.75		116	6.54	981	55.30		
120	5.43	1593	72.15	56.75 - 57.25		125	7.05	1106	62.34		
131	5.93	1724	78.08	57.25 - 57.75		121	6.82	1227	69.17		
80	3.62	1804	81.70	57.75 - 58.25		105	5.92	1332	75.08		
100	4.53	1904	86.23	58.25 - 58.75		83	4.68	1415	79.76		
84	3.80	1988	90.04	58.75 - 59.25		76	4.28	1491	84.05		
43	1.95	2031	91.98	59.25 - 59.75		63	3.55	1554	87.60		
55	2.49	2086	94.47	59.75 - 60.25		60	3.38	1614	90.98		
42	1.90	2128	96.38	60.25 - 60.75		48	2.71	1662	93.69		
24	1.09	2152	97.46	60.75 - 61.25		34	1.92	1696	95.60		
19	.86	2171	98.32	61.25 - 61.75		26	1.47	1722	97.07		
13	.59	2184	98.91	61.75 - 62.25		14	.79	1736	97.86		
13	.59	2197	99.50	62.25 - 62.75		16	.90	1752	98.76		
6	.27	2203	99.77	62.75 - 63.25		11	.62	1763	99.38		
3	.14	2206	99.91	63.25 - 63.75		5	.28	1768	99.66		
0	.00	2206	99.91	63.75 - 64.25		3	.17	1771	99.83		
1	.05	2207	99.95	64.25 - 64.75		1	.06	1772	99.89		
0	.00	2207	99.95	64.75 - 65.25		0	.00	1772	99.89		
0	.00	2207	99.95	65.25 - 65.75		0	.00	1772	99.89		
0	.00	2207	99.95	65.75 - 66.25		2	.11	1774	100.00		
1	.05	2208	100.00	66.25 - 66.75							
				66.75 - 67.25							
				67.25 - 67.75							
				67.75 - 68.25							
				68.25 - 68.75							
				68.75 - 69.25							
				69.25 - 69.75							



#### (4) ACROMION-RADIALE LENGTH

The distance between the acromion landmark on the tip of the right shoulder and the radiale landmark on the right elbow is measured with a beam caliper held parallel to the long axis of the arm. The subject stands erect. The shoulders and upper extremities are relaxed with the palms facing the thighs.



#### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
27.37	10.77	1ST	30.23	11.90	
27.83	10.95	2ND	30.66	12.07	
28.11	11.07	3RD	30.94	12.18	
28.49	11.22	5TH	31.32	12.33	
29.07	11.44	10TH	31.91	12.56	
29.46	11.60	15TH	32.31	12.72	
29.77	11.72	20TH	32.63	12.85	
30.04	11.83	25TH	32.91	12.96	
30.28	11.92	30TH	33.16	13.06	
30.50	12.01	35TH	33.40	13.15	
30.72	12.09	40TH	33.62	13.24	
30.93	12.18	45TH	33.83	13.32	
31.14	12.26	50TH	34.05	13.41	
31.35	12.34	55TH	34.27	13.49	
31.57	12.43	60TH	34.49	13.58	
31.79	12.52	65TH	34.72	13.67	
32.03	12.61	70TH	34.96	13.76	
32.29	12.71	75TH	35.22	13.87	
32.59	12.83	80TH	35.52	13.98	
32.93	12.96	85TH	35.86	14.12	
33.37	13.14	90TH	36.30	14.29	
34.02	13.39	95TH	36.95	14.55	
34.44	13.56	97TH	37.38	14.72	
34.74	13.68	98TH	37.69	14.84	
35.21	13.86	99TH	38.18	15.03	

# ACROMION-RADIALE LENGTH

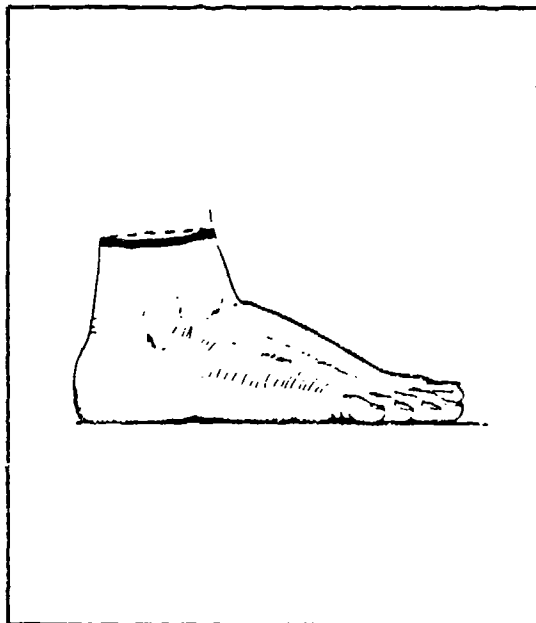
FEMALES			
<u>CM</u>		<u>INCHES</u>	
31.19	MEAN VALUE	12.28	
.04	SE (MEAN)	.00	
1.67	STD DEVIATION	.66	
.03	SE (STD DEV)	.00	
26.20	MINIMUM	10.31	
37.00	MAXIMUM	14.57	
SYMMETRY---VETA I = .14			
KURTOSIS---VETA II = 3.02			
COEF. OF VARIATION = 5.3%			
NUMBER OF SUBJECTS = 2208			

MALES			
<u>CM</u>		<u>INCHES</u>	
34.08	MEAN VALUE	13.42	
.04	SE (MEAN)	.02	
1.72	STD DEVIATION	.68	
.03	SE (STD DEV)	.00	
27.10	MINIMUM	10.67	
41.50	MAXIMUM	16.34	
SYMMETRY---VETA I = .12			
KURTOSIS---VETA II = 3.27			
COEF. OF VARIATION = 5.0%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct	CumF	CumFPct		
2	.09	2	.09	25.75 -	26.25						
4	.18	6	.27	26.25 -	26.75						
8	.36	14	.63	26.75 -	27.25	1	.06	1	.06		
29	1.31	43	1.95	27.25 -	27.75	0	.00	1	.06		
40	1.81	83	3.76	27.75 -	28.25	0	.00	1	.06		
63	2.85	146	6.61	28.25 -	28.75	1	.06	2	.11		
114	5.16	260	11.78	28.75 -	29.25	4	.23	6	.34		
181	8.20	441	19.97	29.25 -	29.75	2	.11	8	.45		
200	9.06	641	29.03	29.75 -	30.25	8	.45	16	.90		
255	11.59	897	40.63	30.25 -	30.75	28	1.58	44	2.48		
268	12.14	1165	52.76	30.75 -	31.25	41	2.31	85	4.79		
260	11.78	1425	64.54	31.25 -	31.75	54	3.04	139	7.84		
224	10.14	1649	74.68	31.75 -	32.25	106	5.98	245	13.81		
184	8.33	1833	83.02	32.25 -	32.75	135	7.61	380	21.42		
123	5.57	1956	88.59	32.75 -	33.25	182	10.26	562	31.68		
108	4.89	2064	93.48	33.25 -	33.75	215	12.12	777	43.80		
60	2.72	2124	96.20	33.75 -	34.25	190	10.71	967	54.51		
44	1.99	2168	98.19	34.25 -	34.75	205	11.56	1172	66.07		
21	.95	2189	99.14	34.75 -	35.25	159	8.96	1331	75.03		
8	.36	2197	99.50	35.25 -	35.75	145	8.17	1476	83.20		
5	.23	2202	99.73	35.75 -	36.25	123	6.93	1599	90.14		
4	.18	2206	99.91	36.25 -	36.75	67	3.78	1666	93.91		
2	.09	2208	100.00	36.75 -	37.25	47	2.65	1713	96.56		
				37.25 -	37.75	27	1.52	1740	98.08		
				37.75 -	38.25	18	1.01	1758	99.10		
				38.25 -	38.75	11	.62	1769	99.72		
				38.75 -	39.25	2	.11	1771	99.83		
				39.25 -	39.75	1	.06	1772	99.89		
				39.75 -	40.25	0	.00	1772	99.89		
				40.25 -	40.75	0	.00	1772	99.89		
				40.75 -	41.25	0	.00	1772	99.89		
				41.25 -	41.75	2	.11	1774	100.00		

## (5) ANKLE CIRCUMFERENCE

The minimum horizontal circumference of the right ankle is measured with a tape. The subject stands with the feet about 10 cm apart and the weight distributed equally on both feet.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
17.99	7.08	1ST	19.32	7.61	
18.21	7.17	2ND	19.57	7.70	
18.37	7.23	3RD	19.75	7.77	
18.60	7.32	5TH	20.02	7.88	
19.00	7.48	10TH	20.47	8.06	
19.28	7.59	15TH	20.79	8.18	
19.50	7.68	20TH	21.05	8.29	
19.70	7.76	25TH	21.28	8.38	
19.88	7.83	30TH	21.48	8.46	
20.05	7.89	35TH	21.67	8.53	
20.20	7.95	40TH	21.85	8.60	
20.36	8.01	45TH	22.02	8.67	
20.51	8.07	50TH	22.19	8.73	
20.66	8.13	55TH	22.35	8.80	
20.81	8.19	60TH	22.52	8.87	
20.96	8.25	65TH	22.69	8.93	
21.13	8.32	70TH	22.87	9.00	
21.31	8.39	75TH	23.06	9.08	
21.52	8.47	80TH	23.27	9.16	
21.76	8.57	85TH	23.52	9.26	
22.07	8.69	90TH	23.82	9.38	
22.56	8.88	95TH	24.27	9.56	
22.90	9.02	97TH	24.57	9.67	
23.18	9.12	98TH	24.79	9.76	
23.64	9.31	99TH	25.15	9.90	

# ANKLE CIRCUMFERENCE

## FEMALES

CM		INCHES
20.53	MEAN VALUE	8.08
.03	SE (MEAN)	.00
1.21	STD DEVIATION	.47
.02	SE (STD DEV)	.00
15.90	MINIMUM	6.26
24.90	MAXIMUM	9.80

SYMMETRY---VETA I = .17  
 KURTOSIS---VETA II = 3.15  
 COEF. OF VARIATION = 5.9%  
 NUMBER OF SUBJECTS = 2208

## MALES

CM		INCHES
22.17	MEAN VALUE	8.73
.03	SE (MEAN)	.00
1.30	STD DEVIATION	.51
.02	SE (STD DEV)	.00
17.70	MINIMUM	6.97
26.70	MAXIMUM	10.51

SYMMETRY---VETA I = .00  
 KURTOSIS---VETA II = 2.90  
 COEF. OF VARIATION = 5.9%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

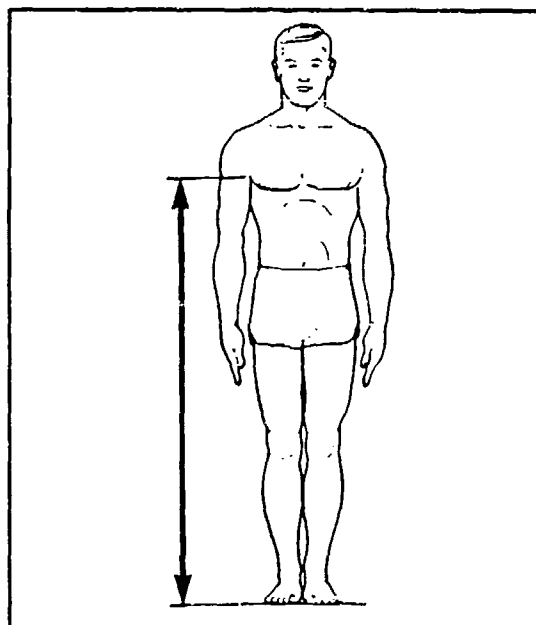
F	FPct	CumF	CumFPct	CENTIMETERS
1	.05	1	.05	15.75 - 15.95
1	.05	2	.09	15.95 - 16.15
0	.00	2	.09	16.15 - 16.35
0	.00	2	.09	16.35 - 16.55
0	.00	2	.09	16.55 - 16.75
1	.05	3	.14	16.75 - 16.95
1	.05	4	.18	16.95 - 17.15
3	.14	7	.32	17.15 - 17.35
2	.09	9	.41	17.35 - 17.55
5	.23	14	.63	17.55 - 17.75
6	.27	20	.91	17.75 - 17.95
16	.72	36	1.63	17.95 - 18.15
25	1.13	61	2.76	18.15 - 18.35
42	1.90	103	4.66	18.35 - 18.55
43	1.95	146	6.61	18.55 - 18.75
57	2.58	203	9.19	18.75 - 18.95
64	2.90	267	12.09	18.95 - 19.15
94	4.26	361	15.35	19.15 - 19.35
107	4.85	468	21.20	19.35 - 19.55
98	4.44	566	25.63	19.55 - 19.75
144	6.52	710	32.16	19.75 - 19.95
144	6.52	854	38.68	19.95 - 20.15
156	7.07	1010	45.74	20.15 - 20.35
134	6.07	1144	51.81	20.35 - 20.55
139	6.30	1283	58.11	20.55 - 20.75
132	5.98	1415	64.09	20.75 - 20.95
136	6.16	1551	70.24	20.95 - 21.15
119	5.39	1670	75.63	21.15 - 21.35
119	5.39	1789	81.02	21.35 - 21.55
86	3.89	1875	84.92	21.55 - 21.75
62	2.81	1937	87.73	21.75 - 21.95
69	3.13	2006	90.85	21.95 - 22.15
44	1.99	2050	92.84	22.15 - 22.35
50	2.26	2100	95.11	22.35 - 22.55
22	1.00	2122	96.11	22.55 - 22.75
27	1.22	2149	97.33	22.75 - 22.95
15	.68	2164	98.01	22.95 - 23.15
11	.50	2175	98.51	23.15 - 23.35
7	.32	2182	98.82	23.35 - 23.55
7	.32	2189	99.14	23.55 - 23.75
13	.59	2202	99.73	23.75 - 23.95
1	.05	2203	99.77	23.95 - 24.15
2	.09	2205	99.86	24.15 - 24.35
0	.00	2205	99.86	24.35 - 24.55
1	.05	2206	99.91	24.55 - 24.75
2	.09	2208	100.00	24.75 - 24.95
				24.95 - 25.15
				25.15 - 25.35
				25.35 - 25.55
				25.55 - 25.75
				25.75 - 25.95
				25.95 - 26.15
				26.15 - 26.35
				26.35 - 26.55
				26.55 - 26.75

### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
0	.00	1	.06
1	.06	2	.11
0	.00	2	.11
2	.11	4	.23
4	.23	8	.45
3	.17	11	.62
2	.17	14	.79
5	.28	19	1.07
15	.85	34	1.92
14	.79	48	2.71
29	1.63	77	4.34
39	2.20	116	6.54
37	2.09	153	8.62
46	2.59	199	11.22
51	2.87	250	14.09
73	4.11	323	18.21
70	3.95	393	22.15
80	4.51	473	26.66
95	5.36	568	32.02
99	5.58	667	37.60
95	5.36	762	42.95
102	5.75	864	48.70
113	6.37	977	55.07
112	6.31	1089	61.39
101	5.69	1190	67.08
87	4.90	1277	71.98
84	4.74	1361	76.72
89	5.02	1450	81.74
67	3.78	1517	85.51
49	2.76	1566	88.28
50	2.82	1616	91.09
47	2.65	1663	93.74
33	1.86	1696	95.60
28	1.58	1724	97.18
18	1.01	1742	98.20
9	.51	1751	98.70
3	.17	1754	98.87
7	.39	1761	99.27
3	.17	1764	99.44
4	.23	1768	99.66
2	.11	1770	99.77
1	.06	1771	99.83
1	.06	1772	99.89
1	.06	1773	99.94
1	.06	1774	100.00

## (6) AXILLA HEIGHT

The vertical distance between a standing surface and the right axillary fold, as designated by the anterior-scye-on-the-torso landmark, is measured with an anthropometer. The subject stands erect looking straight ahead. The heels are together with the weight distributed equally on both feet. The shoulders and upper extremities are relaxed with the palms facing the thighs. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
110.67	43.57	1ST	118.45	46.64
112.42	44.26	2ND	120.19	47.32
113.44	44.66	3RD	121.25	47.74
114.75	45.18	5TH	122.65	48.29
116.64	45.92	10TH	124.73	49.11
117.88	46.41	15TH	126.12	49.65
118.84	46.79	20TH	127.21	50.08
119.69	47.12	25TH	128.16	50.46
120.45	47.42	30TH	129.00	50.79
121.16	47.70	35TH	129.79	51.10
121.84	47.97	40TH	130.54	51.40
122.51	48.23	45TH	131.27	51.68
123.18	48.50	50TH	132.00	51.97
123.87	48.77	55TH	132.74	52.26
124.57	49.04	60TH	133.48	52.55
125.30	49.33	65TH	134.26	52.86
126.09	49.64	70TH	135.08	53.18
126.96	49.98	75TH	135.98	53.53
127.93	50.37	80TH	136.98	53.93
129.07	50.82	85TH	138.15	54.39
130.52	51.39	90TH	139.62	54.97
132.63	52.22	95TH	141.76	55.81
133.93	52.73	97TH	143.12	56.35
134.85	53.09	98TH	144.08	56.73
136.17	53.61	99TH	145.53	57.30

# AXILLA HEIGHT

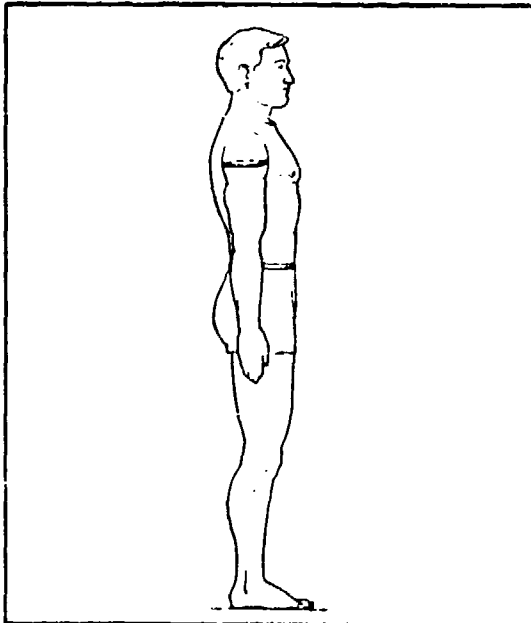
FEMALES			
CM		INCHES	
123.36	MEAN VALUE	48.57	
.12	SE(MEAN)	.05	
5.43	STD DEVIATION	2.14	
.08	SE(STD DEV)	.03	
105.10	MINIMUM	41.38	
145.20	MAXIMUM	57.17	
SYMMETRY---VETA I = .12			
KURTOSIS---VETA II = 3.03			
COEF. OF VARIATION = 4.4%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
132.09	MEAN VALUE	52.00	
.14	SE(MEAN)	.05	
5.80	STD DEVIATION	2.28	
.10	SE(STD DEV)	.04	
107.10	MINIMUM	42.17	
157.70	MAXIMUM	62.09	
SYMMETRY---VETA I = .04			
KURTOSIS---VETA II = 3.22			
COEF. OF VARIATION = 4.4%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
P	FPct	CumF	CumFPct	CENTIMETERS		P	FPct	CumF	CumFPct		
1	.05	1	.05	104.55 - 105.55		1	.06	1	.06		
1	.05	2	.09	105.55 - 106.55		0	.00	1	.06		
0	.00	2	.09	106.55 - 107.55		0	.00	1	.06		
3	.14	5	.23	107.55 - 108.55		0	.00	1	.06		
8	.36	13	.59	108.55 - 109.55		0	.00	1	.06		
8	.36	21	.95	109.55 - 110.55		0	.00	1	.06		
9	.41	30	1.36	110.55 - 111.55		0	.00	1	.06		
18	.82	48	2.17	111.55 - 112.55		0	.00	1	.06		
18	.82	66	2.99	112.55 - 113.55		0	.00	1	.06		
28	1.27	94	4.26	113.55 - 114.55		1	.06	2	.11		
51	2.31	145	6.57	114.55 - 115.55		2	.11	4	.23		
62	2.81	207	9.38	115.55 - 116.55		2	.11	6	.34		
88	3.99	295	13.36	116.55 - 117.55		4	.23	10	.56		
127	5.75	422	19.11	117.55 - 118.55		9	.51	19	1.07		
128	5.80	550	24.91	118.55 - 119.55		11	.62	30	1.69		
158	7.16	708	32.07	119.55 - 120.55		7	.39	37	2.09		
157	7.11	865	39.18	120.55 - 121.55		17	.96	54	3.04		
152	6.88	1017	46.06	121.55 - 122.55		33	1.86	87	4.90		
131	5.93	1148	51.99	122.55 - 123.55		36	2.03	123	6.93		
159	7.20	1307	59.19	123.55 - 124.55		45	2.54	168	9.47		
147	6.66	1454	65.85	124.55 - 125.55		52	2.93	220	12.40		
136	6.16	1590	72.01	125.55 - 126.55		65	3.66	285	16.07		
129	5.84	1719	77.85	126.55 - 127.55		97	5.47	382	21.53		
129	5.84	1848	83.70	127.55 - 128.55		91	5.13	473	26.66		
73	3.31	1921	87.00	128.55 - 129.55		128	7.22	601	33.88		
77	3.49	1998	90.49	129.55 - 130.55		123	6.93	724	40.81		
56	2.54	2054	93.03	130.55 - 131.55		117	6.60	841	47.41		
49	2.22	2103	95.24	131.55 - 132.55		115	6.48	956	53.89		
34	1.54	2137	96.78	132.55 - 133.55		114	6.43	1070	60.32		
28	1.04	2160	97.83	133.55 - 134.55		102	5.75	1172	66.07		
19	.82	2178	98.64	134.55 - 135.55		98	5.52	1270	71.59		
11	.50	2189	99.14	135.55 - 136.55		117	6.60	1387	78.18		
5	.23	2194	99.37	136.55 - 137.55		87	4.90	1474	83.09		
7	.32	2201	99.68	137.55 - 138.55		60	3.38	1534	86.47		
2	.09	2203	99.77	138.55 - 139.55		53	2.99	1587	89.46		
2	.09	2205	99.86	139.55 - 140.55		58	3.27	1645	92.73		
2	.09	2207	99.95	140.55 - 141.55		42	2.37	1687	95.10		
0	.00	2207	99.95	141.55 - 142.55		25	1.41	1712	96.51		
0	.00	2207	99.95	142.55 - 143.55		21	1.18	1733	97.69		
0	.00	2207	99.95	143.55 - 144.55		16	.90	1749	98.59		
1	.05	2208	100.00	144.55 - 145.55		7	.39	1756	98.99		
				145.55 - 146.55		8	.45	1764	99.44		
				146.55 - 147.55		4	.23	1768	99.66		
				147.55 - 148.55		2	.11	1770	99.77		
				148.55 - 149.55		2	.11	1772	99.89		
				149.55 - 150.55		0	.00	1772	99.89		
				150.55 - 151.55		0	.00	1772	99.89		
				151.55 - 152.55		0	.00	1772	99.89		
				152.55 - 153.55		0	.00	1772	99.89		
				153.55 - 154.55		0	.00	1772	99.89		
				154.55 - 155.55		1	.06	1773	99.94		
				155.55 - 156.55		0	.00	1773	99.94		
				156.55 - 157.55		0	.00	1773	99.94		
				157.55 - 158.55		1	.06	1774	100.00		

## (7) AXILLARY ARM CIRCUMFERENCE

The circumference of the right upper arm perpendicular to its long axis at the level of the anterior-scye-on-the-upper arm landmark is measured with a tape. The subject stands erect looking straight ahead with shoulders and upper extremities relaxed and the palms facing the sides.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
23.89	9.41	1ST	27.55	10.85
24.53	9.66	2ND	28.20	11.10
24.91	9.81	3RD	28.61	11.27
25.41	10.00	5TH	29.19	11.49
26.16	10.30	10TH	30.10	11.85
26.67	10.50	15TH	30.72	12.09
27.08	10.66	20TH	31.21	12.29
27.44	10.80	25TH	31.65	12.46
27.77	10.93	30TH	32.03	12.61
28.08	11.05	35TH	32.40	12.75
28.38	11.17	40TH	32.74	12.89
28.68	11.29	45TH	33.08	13.02
28.98	11.41	50TH	33.41	13.15
29.29	11.53	55TH	33.75	13.29
29.61	11.66	60TH	34.09	13.42
29.95	11.79	65TH	34.45	13.56
30.31	11.93	70TH	34.83	13.71
30.72	12.09	75TH	35.24	13.87
31.18	12.27	80TH	35.71	14.06
31.72	12.49	85TH	36.27	14.28
32.43	12.77	90TH	36.98	14.56
33.49	13.18	95TH	38.08	14.99
34.18	13.46	97TH	38.83	15.29
34.68	13.65	98TH	39.39	15.51
35.45	13.96	99TH	40.32	15.87

# AXILLARY ARM CIRCUMFERENCE

FEMALES			
CM		INCHES	
29.16	MEAN VALUE	11.48	
.05	SE (MEAN)	.02	
2.44	STD DEVIATION	.96	
.04	SE (STD DEV)	.00	
22.30	MINIMUM	8.78	
37.70	MAXIMUM	14.84	
SYMMETRY---VETA I = .33			
KURTOSIS---VETA II = 3.10			
COEF. OF VARIATION = 8.4%			
NUMBER OF SUBJECTS = 2208			

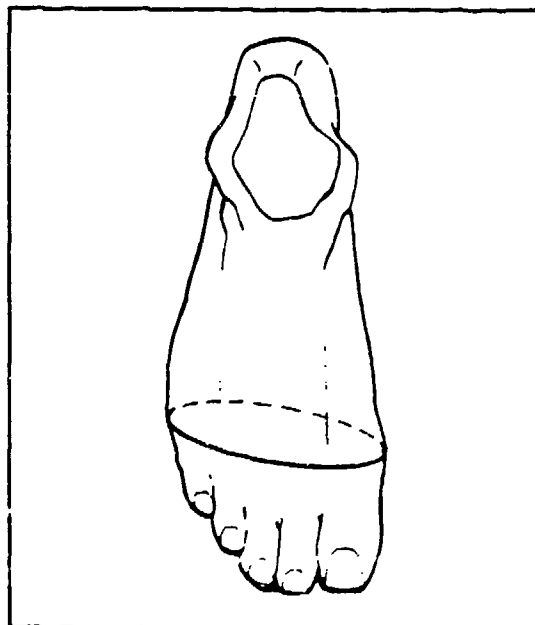
MALES			
CM		INCHES	
33.50	MEAN VALUE	13.19	
.06	SE (MEAN)	.03	
2.71	STD DEVIATION	1.07	
.05	SE (STD DEV)	.02	
24.50	MINIMUM	9.65	
45.30	MAXIMUM	17.83	
SYMMETRY---VETA I = .23			
KURTOSIS---VETA II = 3.20			
COEF. OF VARIATION = 8.1%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE									
FEMALES					MALES				
F	FPct	CumF	CumFPct	CENTIMETERS	F	FPct	CumF	CumFPct	
3	.14	3	.14	22.25 - 22.75					
4	.18	7	.32	22.75 - 23.25					
10	.45	17	.77	23.25 - 23.75					
13	.59	30	1.36	23.75 - 24.25					
26	1.18	56	2.54	24.25 - 24.75	1	.06	1	.06	
45	2.04	101	4.57	24.75 - 25.25	0	.00	1	.06	
58	2.63	159	7.20	25.25 - 25.75	1	.06	2	.11	
78	3.53	237	10.73	25.75 - 26.25	1	.06	3	.17	
111	5.03	348	15.76	26.25 - 26.75	2	.11	5	.28	
122	5.53	470	21.29	26.75 - 27.25	8	.45	13	.73	
169	7.65	639	28.94	27.25 - 27.75	9	.51	22	1.24	
186	8.42	825	37.36	27.75 - 28.25	14	.79	36	2.03	
200	9.06	1025	46.42	28.25 - 28.75	24	1.35	60	3.38	
185	8.38	1210	54.80	28.75 - 29.25	28	1.58	88	4.96	
170	7.70	1380	62.50	29.25 - 29.75	52	2.93	140	7.89	
154	6.97	1534	69.47	29.75 - 30.25	53	2.99	193	10.88	
135	6.11	1669	75.59	30.25 - 30.75	79	4.45	272	15.33	
124	5.62	1793	81.20	30.75 - 31.25	101	5.69	373	21.03	
93	4.21	1886	85.42	31.25 - 31.75	106	5.98	479	27.00	
76	3.44	1962	88.86	31.75 - 32.25	109	6.14	588	33.15	
63	2.85	2025	91.71	32.25 - 32.75	117	6.60	705	39.74	
61	2.76	2086	94.47	32.75 - 33.25	134	7.55	839	47.29	
28	1.27	2114	95.74	33.25 - 33.75	121	6.82	960	54.11	
24	1.09	2138	96.83	33.75 - 34.25	146	8.23	1106	62.34	
29	1.31	2167	98.14	34.25 - 34.75	126	7.10	1232	69.45	
16	.72	2183	98.87	34.75 - 35.25	98	5.52	1330	74.97	
11	.50	2194	99.37	35.25 - 35.75	110	6.20	1440	81.17	
6	.27	2200	99.64	35.75 - 36.25	70	3.95	1510	85.12	
2	.09	2202	99.73	36.25 - 36.75	53	2.99	1563	88.11	
3	.14	2205	99.86	36.75 - 37.25	50	2.82	1613	90.92	
3	.14	2208	100.00	37.25 - 37.75	46	2.59	1659	93.52	
				37.75 - 38.25	34	1.92	1693	95.43	
				38.25 - 38.75	26	1.47	1719	96.90	
				38.75 - 39.25	20	1.13	1739	98.03	
				39.25 - 39.75	9	.51	1748	98.53	
				39.75 - 40.25	7	.39	1755	98.93	
				40.25 - 40.75	4	.23	1759	99.15	
				40.75 - 41.25	7	.39	1766	99.55	
				41.25 - 41.75	3	.17	1769	99.72	
				41.75 - 42.25	3	.17	1772	99.89	
				42.25 - 42.75	0	.00	1772	99.89	
				42.75 - 43.25	0	.00	1772	99.89	
				43.25 - 43.75	0	.00	1772	99.89	
				43.75 - 44.25	1	.06	1773	99.94	
				44.25 - 44.75	0	.00	1773	99.94	
				44.75 - 45.25	0	.00	1773	99.94	
				45.25 - 45.75	1	.06	1774	100.00	



## (8) BALL OF FOOT CIRCUMFERENCE

The circumference of the foot at the first and fifth metatarsophalangeal landmarks on the ball of the right foot is measured with a tape. The subject stands with the feet about 10 cm apart and the weight distributed equally on both feet.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
19.76	7.78	1ST	22.04	8.68
20.06	7.90	2ND	22.40	8.82
20.25	7.97	3RD	22.62	8.90
20.51	8.07	5TH	22.90	9.02
20.92	8.23	10TH	23.32	9.18
21.19	8.34	15TH	23.61	9.29
21.40	8.43	20TH	23.83	9.38
21.59	8.50	25TH	24.02	9.46
21.76	8.57	30TH	24.20	9.53
21.91	8.61	35TH	24.36	9.59
22.05	8.68	40TH	24.51	9.65
22.19	8.74	45TH	24.66	9.71
22.33	8.79	50TH	24.82	9.77
22.47	8.85	55TH	24.97	9.83
22.61	8.90	60TH	25.13	9.89
22.76	8.96	65TH	25.29	9.96
22.92	9.02	70TH	25.47	10.03
23.08	9.09	75TH	25.66	10.10
23.28	9.16	80TH	25.87	10.19
23.50	9.25	85TH	26.13	10.29
23.79	9.37	90TH	26.45	10.41
24.23	9.54	95TH	26.92	10.60
24.53	9.66	97TH	27.23	10.72
24.76	9.75	98TH	27.45	10.81
25.13	9.90	99TH	27.75	10.94

# BALL OF FOOT CIRCUMFERENCE

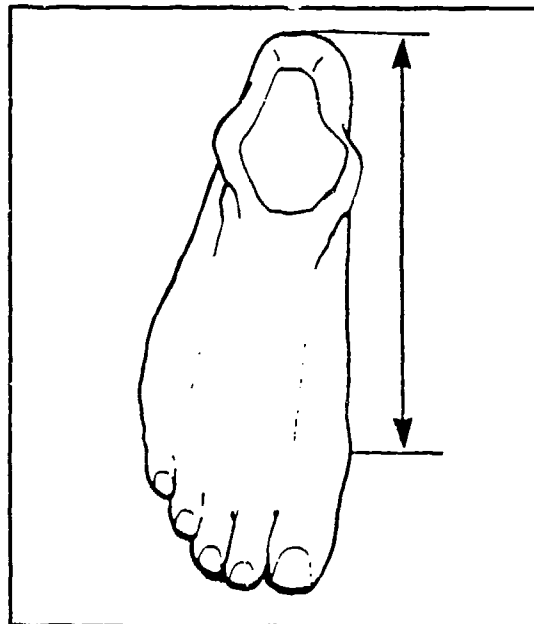
FEMALES			
CM		INCHES	
22.35	MEAN VALUE	8.80	
.02	SE (MEAN)	.00	
1.13	STD DEVIATION	.44	
.02	SE (STD DEV)	.00	
18.50	MINIMUM	7.28	
26.20	MAXIMUM	10.31	
SYMMETRY---VETA I = .09			
KURTOSIS---VETA II = 3.09			
COEF. OF VARIATION = 5.1%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
24.85	MEAN VALUE	9.79	
.03	SE (MEAN)	.00	
1.23	STD DEVIATION	.48	
.02	SE (STD DEV)	.00	
21.00	MINIMUM	8.27	
30.00	MAXIMUM	11.81	
SYMMETRY---VETA I = .16			
KURTOSIS---VETA II = 3.16			
COEF. OF VARIATION = 4.9%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	18.35 -	18.60						
2	.09	3	.14	18.60 -	18.85						
1	.05	4	.18	18.85 -	19.10						
0	.00	4	.18	19.10 -	19.35						
9	.41	13	.59	19.35 -	19.60						
14	.63	27	1.22	19.60 -	19.85						
13	.59	40	1.81	19.85 -	20.10						
43	1.95	83	3.76	20.10 -	20.35						
35	1.59	118	5.34	20.35 -	20.60						
87	3.94	205	9.28	20.60 -	20.85						
72	3.26	277	12.55	20.85 -	21.10	1	.06	1	.06		
148	6.70	425	19.25	21.10 -	21.35	2	.11	3	.17		
115	5.21	540	24.46	21.35 -	21.60	2	.11	5	.28		
192	8.70	732	33.15	21.60 -	21.85	8	.45	13	.73		
163	7.38	895	40.53	21.85 -	22.10	7	.39	20	1.13		
226	10.24	1121	50.77	22.10 -	22.35	12	.68	32	1.80		
165	7.47	1286	58.24	22.35 -	22.60	12	.68	44	2.48		
223	10.10	1509	68.34	22.60 -	22.85	31	1.75	75	4.23		
130	5.89	1639	74.23	22.85 -	23.10	44	2.48	119	6.71		
164	7.43	1803	81.66	23.10 -	23.35	76	4.28	195	10.99		
103	4.66	1906	86.32	23.35 -	23.60	67	3.78	262	14.77		
98	4.44	2004	90.76	23.60 -	23.85	103	5.81	365	20.57		
53	2.40	2057	93.16	23.85 -	24.10	89	5.02	454	25.59		
63	2.85	2120	96.01	24.10 -	24.35	147	8.29	601	33.88		
32	1.45	2152	97.46	24.35 -	24.60	141	7.95	742	41.83		
18	.82	2170	98.28	24.60 -	24.85	164	9.24	906	51.07		
13	.59	2183	98.87	24.85 -	25.10	127	7.16	1033	58.23		
13	.59	2196	99.46	25.10 -	25.35	154	8.68	1187	66.91		
3	.14	2199	99.59	25.35 -	25.60	107	6.03	1294	72.94		
5	.23	2204	99.82	25.60 -	25.85	113	6.37	1407	79.31		
3	.14	2207	99.95	25.85 -	26.10	68	3.83	1475	83.15		
1	.05	2208	100.00	26.10 -	26.35	94	5.30	1569	88.44		
				26.35 -	26.60	48	2.71	1617	91.15		
				26.60 -	26.85	61	3.44	1678	94.59		
				26.85 -	27.10	32	1.80	1710	96.39		
				27.10 -	27.35	24	1.35	1734	97.75		
				27.35 -	27.60	11	.62	1745	98.37		
				27.60 -	27.85	13	.73	1758	99.10		
				27.85 -	28.10	4	.23	1762	99.32		
				28.10 -	28.35	5	.28	1767	99.61		
				28.35 -	28.60	2	.11	1769	99.72		
				28.60 -	28.85	2	.11	1771	99.83		
				28.85 -	29.10	1	.06	1772	99.89		
				29.10 -	29.35	1	.06	1773	99.94		
				29.35 -	29.60	0	.00	1773	99.94		
				29.60 -	29.85	0	.00	1773	99.94		
				29.85 -	30.10	1	.06	1774	100.00		

## (9) BALL OF FOOT LENGTH

The distance from the back of the heel to the landmark at the first metatarsophalangeal protrusion on the ball of the right foot is measured in a footbox. The subject stands erect with each foot in a footbox. The weight is distributed equally on both feet. The medial side of the right foot is parallel with the long axis of the box.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
15.77	6.21	1ST	17.25	6.79	
16.01	6.30	2ND	17.52	6.90	
16.16	6.36	3RD	17.69	6.97	
16.37	6.45	5TH	17.92	7.06	
16.71	6.58	10TH	18.28	7.20	
16.94	6.67	15TH	18.52	7.29	
17.12	6.74	20TH	18.71	7.37	
17.28	6.80	25TH	18.88	7.43	
17.42	6.86	30TH	19.03	7.49	
17.56	6.91	35TH	19.17	7.55	
17.68	6.96	40TH	19.31	7.60	
17.81	7.01	45TH	19.44	7.65	
17.93	7.06	50TH	19.57	7.70	
18.05	7.11	55TH	19.70	7.76	
18.17	7.15	60TH	19.83	7.81	
18.30	7.21	65TH	19.97	7.86	
18.44	7.26	70TH	20.12	7.92	
18.58	7.32	75TH	20.29	7.99	
18.75	7.38	80TH	20.47	8.06	
18.94	7.46	85TH	20.69	8.15	
19.18	7.55	90TH	20.97	8.26	
19.54	7.69	95TH	21.39	8.42	
19.78	7.79	97TH	21.67	8.53	
19.95	7.85	98TH	21.88	8.61	
20.22	7.96	99TH	22.21	8.74	

# BALL OF FOOT LENGTH

## FEMALES

<u>CM</u>		<u>INCHES</u>
17.94	MEAN VALUE	7.06
.02	SE(MEAN)	.00
.96	STD DEVIATION	.38
.00	SE(STD DEV)	.00
14.80	MINIMUM	5.83
21.20	MAXIMUM	8.35

SYMMETRY---VETA I = .05  
 KURTOSIS---VETA II = 2.91  
 COEF. OF VARIATION = 5.3%  
 NUMBER OF SUBJECTS = 2208

## MALES

<u>CM</u>		<u>INCHES</u>
19.60	MEAN VALUE	7.72
.02	SE(MEAN)	.00
1.05	STD DEVIATION	.41
.02	SE(STD DEV)	.00
16.60	MINIMUM	6.54
23.70	MAXIMUM	9.33

SYMMETRY---VETA I = .18  
 KURTOSIS---VETA II = 3.03  
 COEF. OF VARIATION = 5.3%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

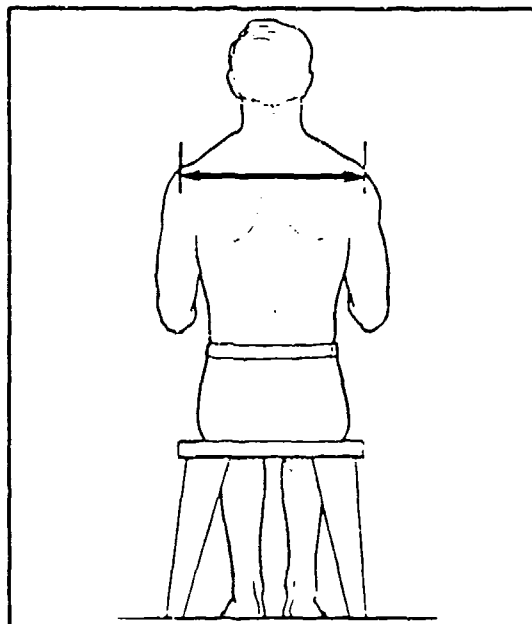
<u>F</u>	<u>FPct</u>	<u>CumF</u>	<u>CumFPct</u>	<u>CENTIMETERS</u>
1	.05	1	.05	14.75 - 14.95
2	.09	3	.14	14.95 - 15.15
3	.14	6	.27	15.15 - 15.35
4	.18	10	.45	15.35 - 15.55
11	.50	21	.95	15.55 - 15.75
16	.72	37	1.68	15.75 - 15.95
23	1.04	60	2.72	15.95 - 16.15
50	2.26	110	4.98	16.15 - 16.35
55	2.49	165	7.47	16.35 - 16.55
69	3.13	234	10.60	16.55 - 16.75
93	4.21	327	14.81	16.75 - 16.95
122	5.53	449	20.34	16.95 - 17.15
177	8.02	626	28.35	17.15 - 17.35
141	6.39	767	34.74	17.35 - 17.55
190	8.61	957	43.34	17.55 - 17.75
166	7.52	1123	50.86	17.75 - 17.95
153	6.93	1276	57.79	17.95 - 18.15
208	9.42	1484	67.21	18.15 - 18.35
152	6.88	1636	74.09	18.35 - 18.55
140	6.34	1776	80.43	18.55 - 18.75
104	4.71	1880	85.14	18.75 - 18.95
95	4.30	1975	89.45	18.95 - 19.15
76	3.44	2051	92.89	19.15 - 19.35
49	2.22	2100	95.11	19.35 - 19.55
39	1.77	2139	96.88	19.55 - 19.75
25	1.13	2164	98.01	19.75 - 19.95
16	.72	2180	98.73	19.95 - 20.15
16	.72	2196	99.46	20.15 - 20.35
7	.32	2203	99.77	20.35 - 20.55
2	.09	2205	99.86	20.55 - 20.75
1	.05	2206	99.91	20.75 - 20.95
1	.05	2207	99.95	20.95 - 21.15
1	.05	2208	100.00	21.15 - 21.35
				21.35 - 21.55
				21.55 - 21.75
				21.75 - 21.95
				21.95 - 22.15
				22.15 - 22.35
				22.35 - 22.55
				22.55 - 22.75
				22.75 - 22.95
				22.95 - 23.15
				23.15 - 23.35
				23.35 - 23.55
				23.55 - 23.75

### MALES

<u>F</u>	<u>FPct</u>	<u>CumF</u>	<u>CumFPct</u>
3	.17	3	.17
3	.17	6	.34
8	.45	14	.79
6	.34	20	1.13
19	1.07	39	2.20
23	1.30	62	3.49
36	2.03	98	5.52
43	2.42	141	7.95
55	3.10	196	11.05
69	3.89	265	14.94
88	4.96	353	19.90
125	7.05	478	26.94
132	7.44	610	34.39
147	8.29	757	42.67
134	7.55	891	50.23
129	7.27	1020	57.50
113	6.37	1133	63.87
109	6.14	1242	70.01
113	6.37	1355	76.38
102	5.75	1457	82.13
79	4.45	1536	86.58
59	3.33	1595	89.91
56	3.16	1651	93.07
33	1.86	1684	94.93
23	1.30	1707	96.22
18	1.01	1725	97.24
18	1.01	1743	98.25
11	.62	1754	98.87
11	.62	1765	99.49
1	.06	1766	99.55
5	.28	1771	99.83
2	.11	1773	99.94
0	.00	1773	99.94
0	.00	1773	99.94
1	.06	1774	100.00

## (10) BIACROMIAL BREADTH

The distance between the right and left acromion landmarks at the tips of the shoulders is measured with a beam caliper. The subject sits erect. The shoulders and upper arms are relaxed and the forearms and hands are extended forward horizontally with the palms facing each other. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
31.82	12.53	1ST	35.59	14.01	
32.46	12.78	2ND	36.01	14.18	
32.83	12.93	3RD	36.30	14.29	
33.32	13.12	5TH	36.70	14.45	
34.02	13.40	10TH	37.35	14.70	
34.48	13.57	15TH	37.80	14.88	
34.83	13.71	20TH	38.16	15.02	
35.12	13.83	25TH	38.47	15.15	
35.39	13.93	30TH	38.75	15.26	
35.63	14.03	35TH	39.01	15.36	
35.86	14.12	40TH	39.25	15.45	
36.08	14.20	45TH	39.49	15.55	
36.30	14.29	50TH	39.72	15.64	
36.51	14.38	55TH	39.95	15.73	
36.73	14.46	60TH	40.18	15.82	
36.96	14.55	65TH	40.42	15.91	
37.20	14.65	70TH	40.66	16.01	
37.46	14.75	75TH	40.93	16.11	
37.75	14.86	80TH	41.23	16.23	
38.07	14.99	85TH	41.57	16.37	
38.48	15.15	90TH	42.00	16.53	
39.06	15.38	95TH	42.63	16.78	
39.41	15.52	97TH	43.04	16.95	
39.65	15.61	98TH	43.35	17.07	
40.00	15.75	99TH	43.85	17.26	

# BIACROMIAL BREADTH

## FEMALES

<u>CM</u>		<u>INCHES</u>
36.26	MEAN VALUE	14.28
.04	SE(MEAN)	.00
1.74	STD DEVIATION	.69
.03	SE(STD DEV)	.00
30.10	MINIMUM	11.85
41.70	MAXIMUM	16.42

SYMMETRY---VETA I = -.15  
 KURTOSIS---VETA II = 3.06  
 COEF. OF VARIATION = 4.8%  
 NUMBER OF SUBJECTS = 2208

## MALES

<u>CM</u>		<u>INCHES</u>
30.70	MEAN VALUE	15.63
.04	SE(MEAN)	.02
1.80	STD DEVIATION	.71
.03	SE(STD DEV)	.00
33.00	MINIMUM	12.99
45.10	MAXIMUM	17.76

SYMMETRY---VETA I = -.05  
 KURTOSIS---VETA II = 2.92  
 COEF. OF VARIATION = 4.5%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
1	.05	1	.05
2	.09	3	.14
9	.41	12	.54
8	.36	20	.91
20	.91	40	1.81
18	.82	58	2.63
43	1.95	101	4.57
60	2.72	161	7.29
113	5.12	274	12.41
142	6.43	416	18.84
187	8.47	603	27.31
235	10.64	838	37.95
252	11.41	1090	49.37
274	12.41	1364	61.78
216	9.78	1580	71.56
169	7.65	1749	79.21
167	7.56	1916	86.78
130	5.89	2046	92.66
85	3.85	2131	96.51
39	1.77	2170	98.28
24	1.09	2194	99.37
5	.23	2199	99.59
6	.27	2205	99.86
3	.14	2208	100.00

### CENTIMETERS

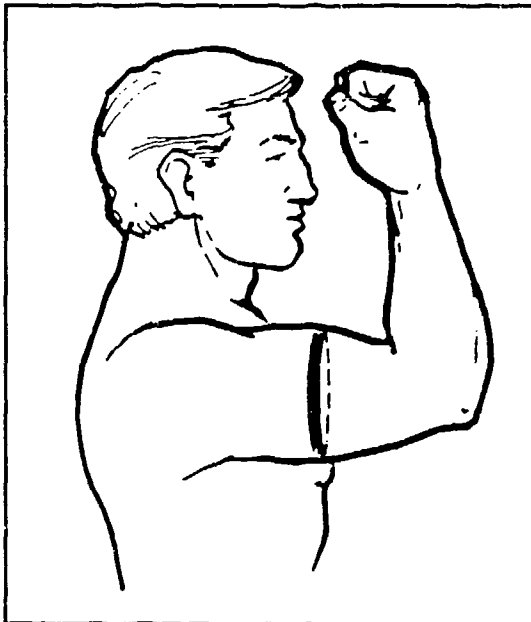
29.75 - 30.25
30.25 - 30.75
30.75 - 31.25
31.25 - 31.75
31.75 - 32.25
32.25 - 32.75
32.75 - 33.25
33.25 - 33.75
33.75 - 34.25
34.25 - 34.75
34.75 - 35.25
35.25 - 35.75
35.75 - 36.25
36.25 - 36.75
36.75 - 37.25
37.25 - 37.75
37.75 - 38.25
38.25 - 38.75
38.75 - 39.25
39.25 - 39.75
39.75 - 40.25
40.25 - 40.75
40.75 - 41.25
41.25 - 41.75
41.75 - 42.25
42.25 - 42.75
42.75 - 43.25
43.25 - 43.75
43.75 - 44.25
44.25 - 44.75
44.75 - 45.25

### MALES

F	F2ct	CumF	CumFPct
1	.06	1	.06
0	.00	1	.06
2	.11	3	.17
2	.11	5	.28
8	.45	13	.73
12	.68	25	1.41
25	1.41	50	2.82
39	2.20	89	5.02
70	3.95	159	8.96
87	4.90	246	13.87
133	7.50	379	21.36
164	9.24	543	30.61
171	9.64	714	40.25
181	10.20	895	50.45
188	10.60	1083	61.05
194	10.94	1277	71.98
154	8.68	1431	80.67
126	7.10	1557	87.77
82	4.62	1639	92.39
54	3.04	1693	95.43
40	2.25	1733	97.69
21	1.18	1754	98.87
14	.79	1768	99.66
3	.17	1771	99.83
3	.17	1774	100.00

## (11) BICEPS CIRCUMFERENCE, FLEXED

The circumference of the right upper arm around the flexed biceps muscle is measured with a tape held perpendicular to the long axis of the upper arm. The subject stands with the upper arm extended horizontally and the elbow flexed 90 degrees. The fist is clenched and held facing the head, and the subject exerts maximum effort in "making a muscle."



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
23.14	9.11	1ST	27.68	10.90	
23.76	9.36	2ND	28.48	11.21	
24.13	9.50	3RD	28.95	11.40	
24.62	9.69	5TH	29.57	11.64	
25.35	9.98	10TH	30.47	11.99	
25.83	10.17	15TH	31.05	12.23	
26.22	10.32	20TH	31.51	12.41	
26.56	10.46	25TH	31.91	12.56	
26.86	10.58	30TH	32.27	12.70	
27.15	10.69	35TH	32.60	12.84	
27.43	10.80	40TH	32.93	12.96	
27.71	10.91	45TH	33.24	13.09	
27.98	11.02	50TH	33.56	13.21	
28.27	11.13	55TH	33.89	13.34	
28.56	11.24	60TH	34.23	13.47	
28.87	11.36	65TH	34.58	13.62	
29.20	11.50	70TH	34.97	13.77	
29.56	11.64	75TH	35.40	13.94	
29.98	11.80	80TH	35.89	14.13	
30.48	12.00	85TH	36.49	14.36	
31.13	12.25	90TH	37.27	14.67	
32.10	12.64	95TH	38.50	15.16	
32.75	12.89	97TH	39.35	15.49	
33.22	13.08	98TH	39.99	15.74	
33.96	13.37	99TH	41.03	16.15	

## BICEPS CIRCUMFERENCE, FLEXED

FEMALES		
<u>CM</u>		<u>INCHES</u>
28.13	MEAN VALUE	11.08
.05	SE (MEAN)	.02
2.27	STD DEVIATION	.89
.03	SE (STD DEV)	.00
21.30	MINIMUM	8.39
37.10	MAXIMUM	14.61
SYMMETRY---	VETA I	= .33
KURTOSIS---	VETA II	= 3.23
COEF. OF VARIATION		= 8.1%
NUMBER OF SUBJECTS		= 2208

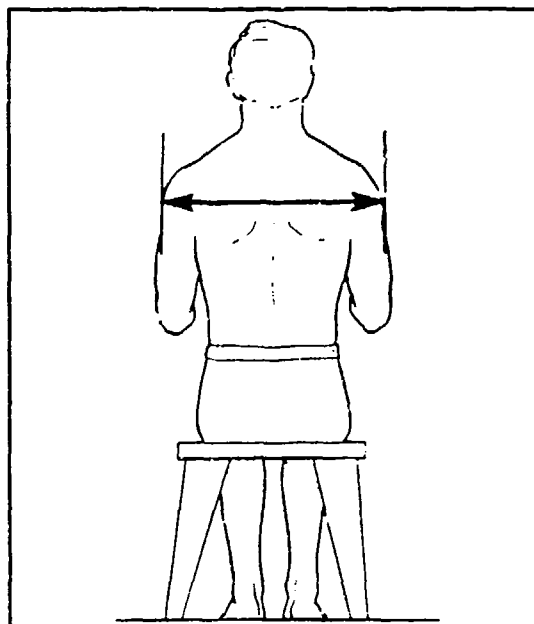
MALES			
<u>CM</u>			<u>INCHES</u>
33.75	MEAN VALUE		13.29
.06	SE (MEAN)		.03
2.71	STD DEVIATION		1.07
.05	SE (STD DEV)		.02
25.90	MINIMUM		10.20
43.70	MAXIMUM		17.20
SYMMETRY---VETA I	=		.33
KURTOSIS---VETA II	=		3.34
COEF. OF VARIATION	=		8.0%
NUMBER OF SUBJECTS	=		1774

FEMALES					MALES			
F	FPct	CumF	CumFPct	CENTIMETERS	F	FPct	CumF	CumFPct
3	.14	3	.14	21.25 - 21.75				
0	.00	3	.14	21.75 - 22.25				
3	.14	6	.27	22.25 - 22.75				
19	.86	25	1.13	22.75 - 23.25				
19	.86	44	1.99	23.25 - 23.75				
30	1.36	74	3.35	23.75 - 24.25				
55	2.49	129	5.84	24.25 - 24.75				
74	3.35	203	9.19	24.75 - 25.25				
107	4.85	310	14.04	25.25 - 25.75				
139	6.30	449	20.34	25.75 - 26.25	2	.11	2	.11
150	6.79	599	27.13	26.25 - 26.75	2	.11	4	.23
207	9.38	806	36.50	26.75 - 27.25	10	.56	14	.79
202	9.15	1008	45.65	27.25 - 27.75	5	.28	19	1.07
194	8.79	1202	54.44	27.75 - 28.25	9	.51	28	1.58
199	9.01	1401	63.45	28.25 - 28.75	14	.79	42	2.37
179	8.11	1580	71.56	28.75 - 29.25	24	1.35	66	3.72
142	6.43	1722	77.99	29.25 - 29.75	32	1.80	98	5.52
109	4.94	1831	82.93	29.75 - 30.25	44	2.48	142	8.00
99	4.48	1930	87.41	30.25 - 30.75	65	3.66	207	11.67
84	3.80	2014	91.21	30.75 - 31.25	108	6.09	315	17.76
48	2.17	2062	93.39	31.25 - 31.75	90	5.07	405	22.83
39	1.77	2101	95.15	31.75 - 32.25	140	7.89	545	30.72
36	1.63	2137	96.78	32.25 - 32.75	114	6.43	659	37.15
33	1.49	2170	98.28	32.75 - 33.25	141	7.95	800	45.10
14	.63	2184	98.91	33.25 - 33.75	142	8.00	942	53.10
5	.23	2189	99.14	33.75 - 34.25	140	7.89	1082	60.99
8	.36	2197	99.50	34.25 - 34.75	105	5.92	1187	66.91
6	.27	2203	99.77	34.75 - 35.25	104	5.86	1291	72.77
1	.05	2204	99.82	35.25 - 35.75	68	3.83	1359	76.61
2	.09	2206	99.91	35.75 - 36.25	112	6.31	1471	82.92
1	.05	2207	99.95	36.25 - 36.75	70	3.95	1541	86.87
1	.05	2208	100.00	36.75 - 37.25	67	3.78	1608	90.64
				37.25 - 37.75	41	2.31	1649	92.95
				37.75 - 38.25	37	2.09	1686	95.04
				38.25 - 38.75	19	1.07	1705	96.11
				38.75 - 39.25	14	.79	1719	96.90
				39.25 - 39.75	11	.62	1730	97.52
				39.75 - 40.25	9	.51	1739	98.03
				40.25 - 40.75	12	.68	1751	98.70
				40.75 - 41.25	12	.68	1763	99.38
				41.25 - 41.75	1	.06	1764	99.44
				41.75 - 42.25	4	.23	1768	99.66
				42.25 - 42.75	2	.11	1770	99.77
				42.75 - 43.25	0	.00	1770	99.77
				43.25 - 43.75	4	.23	1774	100.00



## (12) BIDELOID BREADTH

The maximum horizontal distance between the lateral margins of the upper arms on the deltoid muscles is measured with a beam caliper. The subject sits erect looking straight ahead. The shoulders and upper arms are relaxed and the forearms and hands are extended forward horizontally with the palms facing each other. The measurement is made at the maximum point of quiet respiration.



### THE PERCENTILES

FEMPLES			MALES		
CM	INCHES		CM	INCHES	
38.03	14.97	1ST	43.40	17.09	
38.73	15.25	2ND	44.02	17.33	
39.16	15.42	3RD	44.43	17.49	
39.70	15.63	5TH	44.99	17.71	
40.49	15.94	10TH	45.87	18.06	
41.00	16.14	15TH	46.48	18.30	
41.40	16.30	20TH	46.96	18.49	
41.75	16.44	25TH	47.39	18.56	
42.05	16.56	30TH	47.77	18.81	
42.34	16.67	35TH	48.13	18.95	
42.61	16.78	40TH	48.47	19.08	
42.88	16.88	45TH	48.81	19.22	
43.14	16.99	50TH	49.14	19.35	
43.41	17.09	55TH	49.47	19.48	
43.69	17.20	60TH	49.81	19.61	
43.99	17.32	65TH	50.16	19.75	
44.30	17.44	70TH	50.53	19.89	
44.65	17.58	75TH	50.92	20.05	
45.06	17.74	80TH	51.37	20.23	
45.54	17.93	85TH	51.89	20.43	
46.17	18.18	90TH	52.53	20.68	
47.17	18.57	95TH	53.48	21.05	
47.85	18.84	97TH	54.07	21.29	
48.36	19.04	98TH	54.50	21.46	
49.21	19.37	99TH	6	21.71	

# BIDELTOID BREADTH

## FEMALES

CM		INCHES
43.26	MEAN VALUE	17.03
.05	SE(MEAN)	.02
2.26	STD DEVIATION	.89
.03	SE(STD DEV)	.00
36.90	MINIMUM	14.53
53.20	MAXIMUM	20.94

SYMMETRY---VETA I = .30  
 KURTOSIS---VETA II = 3.46  
 COEF. OF VARIATION = 5.2%  
 NUMBER OF SUBJECTS = 2208

## MALES

CM		INCHES
49.18	MEAN VALUE	19.36
.06	SE(MEAN)	.02
2.59	STD DEVIATION	1.02
.04	SE(STD DEV)	.02
41.00	MINIMUM	16.14
59.30	MAXIMUM	23.35

SYMMETRY---VETA I = .11  
 KURTOSIS---VETA II = 3.03  
 COEF. OF VARIATION = 5.3%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
4	.18	4	.18
10	.45	14	.63
14	.63	28	1.27
19	.86	47	2.13
21	.95	68	3.08
45	2.04	113	5.12
70	3.17	183	8.29
96	4.35	279	12.64
112	5.07	391	17.71
153	6.93	544	24.64
183	8.29	727	32.93
216	9.78	943	42.71
210	9.51	1153	52.22
207	9.38	1360	61.59
169	7.65	1529	69.25
159	7.20	1688	76.45
126	5.71	1814	82.16
100	4.53	1914	86.68
75	3.40	1989	90.08
81	3.67	2070	93.75
41	1.86	2111	95.61
28	1.27	2139	96.88
19	.86	2158	97.74
18	.82	2176	98.55
11	.50	2187	99.05
10	.45	2197	99.50
4	.18	2201	99.68
1	.05	2202	99.73
2	.09	2204	99.82
1	.05	2205	99.86
2	.09	2207	99.95
0	.00	2207	99.95
1	.05	2208	100.00

### CENTIMETERS

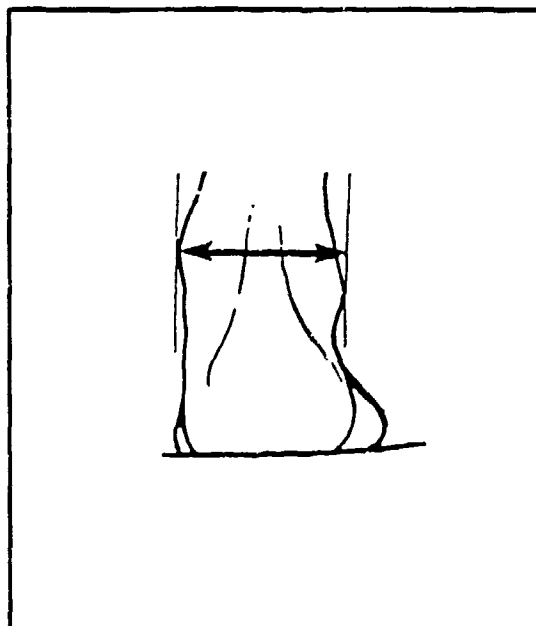
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59.25 - 59.75

### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
1	.06	2	.11
4	.23	6	.34
4	.23	10	.56
6	.34	16	.90
10	.56	26	1.47
14	.79	40	2.25
28	1.58	68	3.83
44	2.48	112	6.31
57	3.21	169	9.53
64	3.61	233	13.13
85	4.79	318	17.93
88	4.96	406	22.89
127	7.16	533	30.05
115	6.48	648	36.53
127	7.16	775	43.69
146	8.23	921	51.92
132	7.44	1053	59.36
115	6.48	1168	65.84
123	6.93	1291	72.77
108	6.09	1399	78.86
99	5.58	1498	84.44
56	3.16	1554	87.60
62	3.49	1616	91.09
52	2.92	1668	94.02
37	2.09	1705	96.11
26	1.47	1731	97.58
19	1.07	1750	98.65
7	.39	1757	99.04
6	.34	1763	99.38
3	.17	1766	99.55
3	.17	1769	99.72
0	.00	1769	99.72
1	.06	1770	99.77
2	.11	1772	99.89
0	.00	1772	99.89
1	.06	1773	99.94
1	.06	1774	100.00

### (13) BIMALLEOLAR BREADTH

The horizontal distance between the maximum protrusions of the ankle bones (lateral and medial malleoli) of the right foot is measured with a Holtain caliper. The subject stands with the weight equally distributed on both feet.



#### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
5.72	2.25	1ST	6.40	2.52	
5.81	2.29	2ND	6.50	2.56	
5.86	2.31	3RD	6.56	2.58	
5.94	2.34	5TH	6.65	2.62	
6.05	2.38	10TH	6.78	2.67	
6.12	2.41	15TH	6.87	2.71	
6.18	2.43	20TH	6.95	2.73	
6.23	2.45	25TH	7.01	2.76	
6.27	2.47	30TH	7.07	2.78	
6.32	2.49	35TH	7.12	2.80	
6.36	2.50	40TH	7.17	2.82	
6.40	2.52	45TH	7.22	2.84	
6.43	2.53	50TH	7.27	2.86	
6.47	2.55	55TH	7.32	2.88	
6.51	2.56	60TH	7.38	2.90	
6.55	2.58	65TH	7.43	2.92	
6.60	2.60	70TH	7.49	2.95	
6.65	2.62	75TH	7.55	2.97	
6.70	2.64	80TH	7.61	3.00	
6.77	2.66	85TH	7.69	3.03	
6.85	2.70	90TH	7.79	3.07	
6.97	2.74	95TH	7.94	3.13	
7.05	2.78	97TH	8.03	3.16	
7.11	2.80	98TH	8.10	3.19	
7.20	2.83	99TH	8.20	3.23	

# BIMALLEOLAR BREADTH

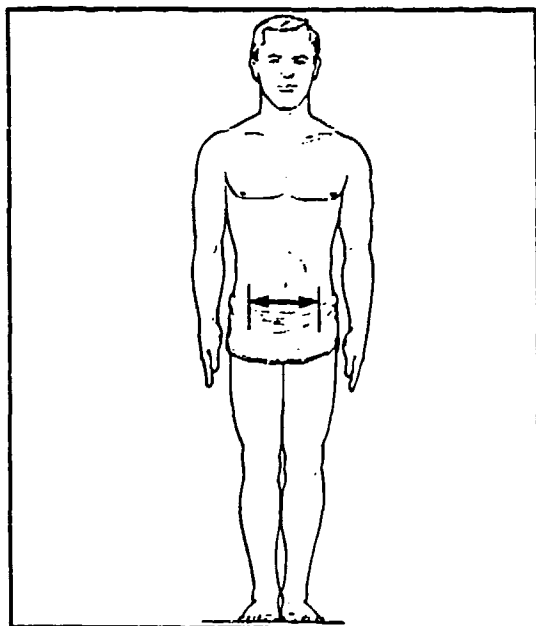
FEMALES			
CM		INCHES	
6.44	MEAN VALUE	2.54	
.00	SE(MEAN)	.00	
.31	STD DEVIATION	.12	
.00	SE(STD DEV)	.00	
5.20	MINIMUM	2.05	
7.60	MAXIMUM	2.99	
SYMMETRY---VETA I = .08			
KURTOSIS---VETA II = 3.05			
COEF. OF VARIATION = 4.9%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
7.28	MEAN VALUE	2.87	
.00	SE(MEAN)	.00	
.39	STD DEVIATION	.15	
.00	SE(STD DEV)	.00	
6.10	MINIMUM	2.40	
8.60	MAXIMUM	3.39	
SYMMETRY---VETA I = .09			
KURTOSIS---VETA II = 2.86			
COEF. OF VARIATION = 5.4%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	5.15 - 5.25							
0	.00	1	.05	5.25 - 5.35							
1	.05	2	.09	5.35 - 5.45							
1	.05	3	.14	5.45 - 5.55							
7	.32	10	.45	5.55 - 5.65							
23	1.04	33	1.49	5.65 - 5.75							
16	.72	49	2.22	5.75 - 5.85							
58	2.63	107	4.85	5.85 - 5.95							
135	6.11	242	10.96	5.95 - 6.05							
155	7.02	397	17.98	6.05 - 6.15		1	.06	1	.06		
219	9.92	616	27.90	6.15 - 6.25		2	.11	3	.17		
233	10.55	849	38.45	6.25 - 6.35		8	.45	11	.62		
292	13.22	1141	51.68	6.35 - 6.45		13	.73	24	1.35		
269	12.18	1410	63.86	6.45 - 6.55		29	1.63	53	2.99		
236	10.69	1646	74.55	6.55 - 6.65		33	1.86	86	4.85		
242	10.96	1888	85.51	6.65 - 6.75		63	3.55	149	8.40		
103	4.66	1991	90.17	6.75 - 6.85		90	5.07	239	13.47		
83	3.76	2074	93.93	6.85 - 6.95		104	5.86	343	19.33		
74	3.35	2148	97.28	6.95 - 7.05		159	8.96	502	28.30		
29	1.31	2177	98.60	7.05 - 7.15		175	9.86	677	38.16		
16	.72	2193	99.32	7.15 - 7.25		171	9.64	848	47.80		
10	.45	2203	99.77	7.25 - 7.35		181	10.20	1029	58.00		
4	.18	2207	99.95	7.35 - 7.45		143	8.06	1172	66.07		
0	.00	2207	99.95	7.45 - 7.55		166	9.36	1338	75.42		
1	.05	2208	100.00	7.55 - 7.65		137	7.72	1475	83.15		
				7.65 - 7.75		89	5.02	1564	88.16		
				7.75 - 7.85		64	3.61	1628	91.77		
				7.85 - 7.95		56	3.16	1684	94.93		
				7.95 - 8.05		49	2.76	1733	97.69		
				8.05 - 8.15		16	.90	1749	98.59		
				8.15 - 8.25		14	.79	1763	99.38		
				8.25 - 8.35		4	.23	1767	99.61		
				8.35 - 8.45		5	.28	1772	99.89		
				8.45 - 8.55		1	.06	1773	99.94		
				8.55 - 8.65		1	.06	1774	100.00		

## (14) BISPINOUS BREADTH

The straight-line distance between the right and left anterior superior iliac spine landmarks is measured with a beam caliper. The subject stands looking straight ahead with the heels together and the weight distributed equally on both feet.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
17.45	6.87	1ST	18.73	7.37	
17.93	7.06	2ND	19.25	7.58	
18.24	7.18	3RD	19.57	7.70	
18.68	7.35	5TH	20.00	7.87	
19.37	7.62	10TH	20.65	8.13	
19.84	7.81	15TH	21.09	8.30	
20.23	7.96	20TH	21.45	8.44	
20.57	8.10	25TH	21.76	8.57	
20.87	8.22	30TH	22.04	8.68	
21.15	8.33	35TH	22.30	8.78	
21.42	8.43	40TH	22.55	8.88	
21.69	8.54	45TH	22.80	8.98	
21.95	8.64	50TH	23.05	9.07	
22.22	8.75	55TH	23.30	9.17	
22.48	8.85	60TH	23.56	9.27	
22.76	8.96	65TH	23.83	9.38	
23.06	9.08	70TH	24.12	9.49	
23.37	9.20	75TH	24.43	9.62	
23.73	9.34	80TH	24.79	9.76	
24.14	9.50	85TH	25.21	9.93	
24.66	9.71	90TH	25.75	10.14	
25.41	10.01	95TH	26.55	10.45	
25.89	10.19	97TH	27.07	10.66	
26.24	10.33	98TH	27.45	10.81	
26.77	10.54	99TH	28.03	11.03	

# BISPINOUS BREADTH

## FEMALES

CM		INCHES
21.99	MEAN VALUE	8.66
.04	SE(MEAN)	.02
2.05	STD DEVIATION	.81
.03	SE(STD DEV)	.00
15.10	MINIMUM	5.94
29.30	MAXIMUM	11.54

SYMMETRY---VETA I = .11  
 KURTOSIS---VETA II = 2.92  
 COEF. OF VARIATION = 9.3%  
 NUMBER OF SUBJECTS = 2208

## MALES

CM		INCHES
23.13	MEAN VALUE	9.11
.05	SE(MEAN)	.02
1.98	STD DEVIATION	.78
.03	SE(STD DEV)	.00
17.70	MINIMUM	6.97
31.10	MAXIMUM	12.24

SYMMETRY---VETA I = .22  
 KURTOSIS---VETA II = 3.03  
 COEF. OF VARIATION = 8.5%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
1	.05	1	.05
0	.00	1	.05
2	.09	3	.14
5	.23	8	.36
8	.36	16	.72
19	.86	35	1.59
35	1.59	70	3.17
46	2.08	116	5.25
81	3.67	197	8.92
115	5.21	312	14.13
151	6.84	463	20.97
158	7.16	621	28.13
187	8.47	808	36.59
212	9.60	1020	46.20
216	9.78	1136	55.98
190	8.61	1426	64.58
192	8.70	1618	73.28
155	7.02	1773	80.30
122	5.53	1895	85.82
105	4.76	2000	90.58
85	3.85	2085	94.43
47	2.13	2132	96.56
31	1.40	2163	97.96
23	1.04	2186	99.00
9	.41	2195	99.41
5	.23	2200	99.64
2	.09	2202	99.73
4	.18	2206	99.91
1	.05	2207	99.95
1	.05	2208	100.00

### CENTIMETERS

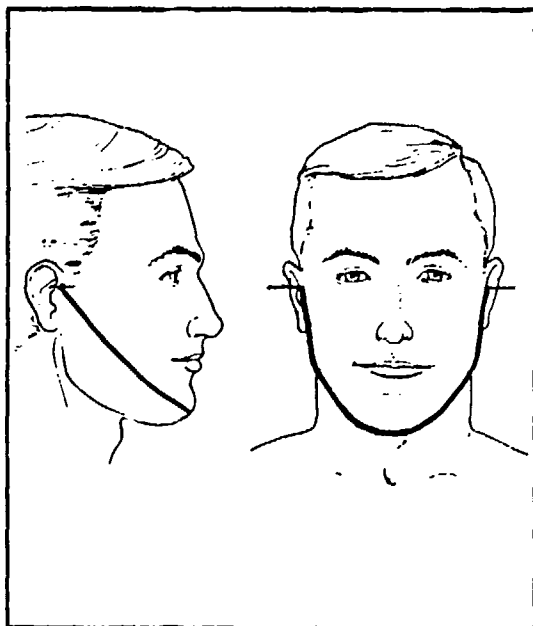
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30.75 - 31.25

### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
3	.17	4	.23
14	.79	18	1.01
13	.73	31	1.75
41	2.31	72	4.06
51	2.87	123	6.93
72	4.06	195	10.99
87	4.90	282	15.90
139	7.84	421	23.73
185	10.43	606	34.16
168	9.47	774	43.63
189	10.65	963	54.28
178	10.03	1141	64.32
160	9.02	1301	73.34
117	6.60	1418	79.93
98	5.52	1516	85.46
78	4.40	1594	89.85
64	3.61	1658	93.46
45	2.54	1703	96.00
24	1.35	1727	97.35
21	1.18	1748	98.53
12	.68	1760	99.21
8	.45	1768	99.66
4	.23	1772	99.89
1	.06	1773	99.94
0	.00	1773	99.94
0	.00	1773	99.94
1	.06	1774	100.00

## (15) BITRAGON CHIN ARC

The surface distance between the right and left tragon landmarks across the chin landmark at the tip of the chin is measured with a tape. The teeth are lightly occluded.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
27.37	10.78	1ST	29.54	11.63	
27.71	10.91	2ND	29.89	11.77	
27.92	10.99	3RD	30.11	11.85	
28.19	11.10	5TH	30.42	11.97	
28.62	11.27	10TH	30.89	12.16	
28.92	11.39	15TH	31.21	12.29	
29.16	11.48	20TH	31.46	12.39	
29.37	11.56	25TH	31.68	12.47	
29.56	11.64	30TH	31.87	12.55	
29.74	11.71	35TH	32.06	12.62	
29.91	11.78	40TH	32.23	12.69	
30.08	11.84	45TH	32.40	12.76	
30.25	11.91	50TH	32.57	12.82	
30.42	11.98	55TH	32.73	12.89	
30.60	12.05	60TH	32.90	12.95	
30.78	12.12	65TH	33.08	13.02	
30.98	12.20	70TH	33.27	13.10	
31.19	12.28	75TH	33.47	13.18	
31.43	12.37	80TH	33.70	13.27	
31.71	12.48	85TH	33.97	13.37	
32.05	12.62	90TH	34.31	13.51	
32.55	12.81	95TH	34.83	13.71	
32.85	12.93	97TH	35.17	13.85	
33.06	13.02	98TH	35.42	13.95	
33.37	13.14	99TH	35.83	14.10	

# BITRAGION CHIN ARC

## FEMALES

CM		INCHES
30.29	MEAN VALUE	11.93
.03	SE(MEAN)	.00
1.32	STD DEVIATION	.52
.02	SE(STD DEV)	.00
26.10	MINIMUM	10.28
35.00	MAXIMUM	13.78

SYMMETRY---VETA I	=	.14
KURTOSIS---VETA II	=	2.94
COEF. OF VARIATION	=	4.4%
NUMBER OF SUBJECTS	=	2208

## MALES

CM		INCHES
32.58	MEAN VALUE	12.83
.03	SE(MEAN)	.00
1.34	STD DEVIATION	.53
.02	SE(STD DEV)	.00
27.80	MINIMUM	10.94
37.20	MAXIMUM	14.65

SYMMETRY---VETA I	=	.04
KURTOSIS---VETA II	=	3.07
COEF. OF VARIATION	=	4.1%
NUMBER OF SUBJECTS	=	1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
2	.09	2	.09
0	.00	2	.09
4	.18	6	.27
4	.18	10	.45
8	.36	18	.82
18	.82	36	1.63
28	1.27	64	2.90
24	1.09	88	3.99
58	2.63	146	6.61
58	2.63	204	9.24
109	4.94	313	14.18
73	3.31	386	17.48
154	6.97	540	24.46
108	4.89	648	29.35
192	8.70	840	38.04
139	6.30	979	44.34
191	8.65	1170	52.99
149	6.75	1319	59.74
165	7.47	1484	67.21
100	4.53	1584	71.74
170	7.76	1754	79.44
84	3.80	1838	83.24
86	3.89	1924	87.14
59	2.67	1983	89.81
80	3.62	2063	93.43
34	1.54	2097	94.97
43	1.95	2140	96.92
19	.86	2159	97.78
29	1.31	2188	99.09
9	.41	2197	99.50
1	.05	2198	99.55
3	.14	2201	99.68
1	.05	2202	99.73
1	.05	2203	99.77
4	.18	2207	99.95
1	.05	2208	100.00

### CENTIMETERS

26.10 - 26.35
26.35 - 26.60
26.60 - 26.85
26.85 - 27.10
27.10 - 27.35
27.35 - 27.60
27.60 - 27.85
27.85 - 28.10
28.10 - 28.35
28.35 - 28.60
28.60 - 28.85
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34.60 - 34.85
34.85 - 35.10
35.10 - 35.35
35.35 - 35.60
35.60 - 35.85
35.85 - 36.10
36.10 - 36.35
36.35 - 36.60
36.60 - 36.85
36.85 - 37.10
37.10 - 37.35

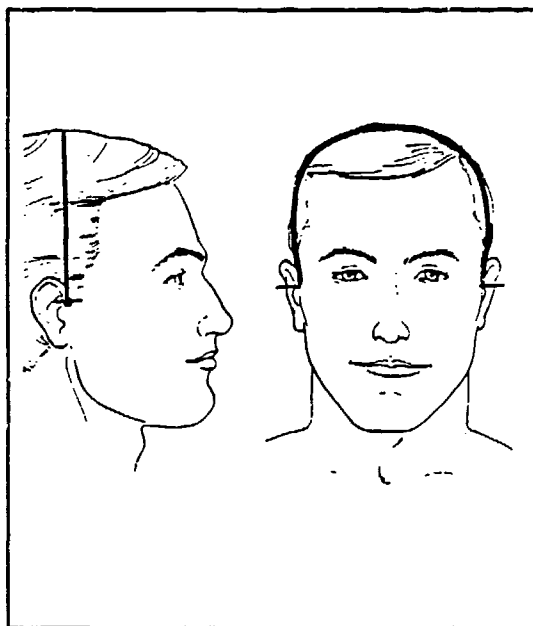
### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
0	.00	1	.06
1	.06	2	.11
2	.11	4	.23
1	.06	5	.28
4	.23	9	.51
4	.23	13	.73
4	.23	17	.96
16	.90	33	1.86
19	1.07	52	2.93
33	1.86	85	4.79
29	1.63	114	6.43
56	3.16	170	9.58
52	2.93	222	12.51
87	4.90	309	17.42
76	4.28	385	21.70
129	7.27	514	28.97
105	5.92	619	34.89
155	8.74	774	43.63
111	6.26	885	49.89
161	9.08	1046	58.96
105	5.92	1151	64.88
135	7.61	1286	72.49
91	5.13	1377	77.62
88	4.96	1465	82.58
58	3.27	1523	85.85
82	4.62	1605	90.47
40	2.25	1645	92.73
52	2.93	1697	95.66
13	.73	1710	96.39
23	1.30	1733	97.69
10	.56	1743	98.25
18	1.01	1761	99.27
7	.39	1768	99.66
2	.11	1770	99.77
2	.11	1772	99.89
0	.00	1772	99.89
1	.06	1773	99.94
1	.06	1774	100.00



## (16) BITRAGION CORONAL ARC

The surface distance between the right and left trignon landmarks across the top of the head is measured with a tape. The head is in the Frankfort plane.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
30.78	12.12	1ST	32.29	12.71
31.08	12.24	2ND	32.66	12.86
31.28	12.31	3RD	32.89	12.95
31.56	12.42	5TH	33.20	13.07
32.00	12.60	10TH	33.68	13.26
32.30	12.72	15TH	34.00	13.39
32.54	12.81	20TH	34.26	13.49
32.76	12.90	25TH	34.47	13.57
32.95	12.97	30TH	34.66	13.65
33.12	13.04	35TH	34.84	13.72
33.29	13.11	40TH	35.01	13.78
33.45	13.17	45TH	35.17	13.85
33.61	13.23	50TH	35.33	13.91
33.77	13.30	55TH	35.49	13.97
33.94	13.36	60TH	35.65	14.03
34.11	13.43	65TH	35.81	14.10
34.29	13.50	70TH	35.99	14.17
34.48	13.58	75TH	36.18	14.24
34.70	13.66	80TH	36.40	14.33
34.96	13.76	85TH	36.65	14.43
35.30	13.90	90TH	36.97	14.56
35.81	14.10	95TH	37.47	14.75
36.16	14.24	97TH	37.81	14.88
36.43	14.34	98TH	38.06	14.98
36.87	14.51	99TH	38.48	15.15

# BITRAGON CORONAL ARC

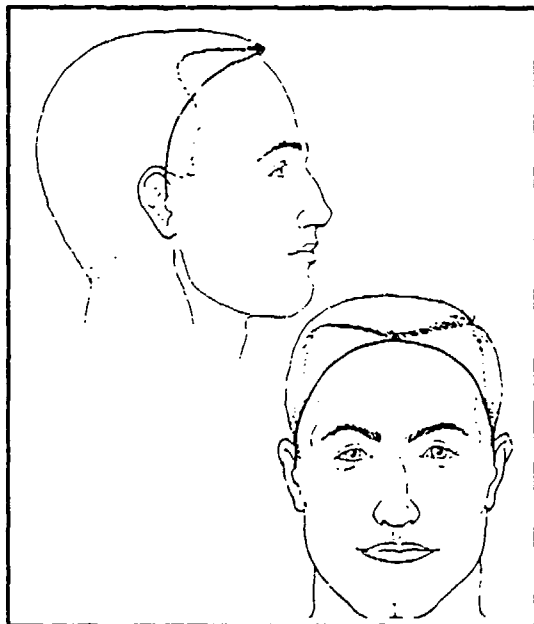
FEMALES			
CM		INCHES	
33.64	MEAN VALUE	13.24	
.03	SE(MEAN)	.00	
1.29	STD DEVIATION	.51	
.02	SE(STD DEV)	.00	
29.80	MINIMUM	11.73	
39.20	MAXIMUM	15.43	
SYMMETRY---VETA I = .19			
KURTOSIS---VETA II = 3.24			
COEF. OF VARIATION = 3.8%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
35.33	MEAN VALUE	13.91	
.03	SE(MEAN)	.00	
1.29	STD DEVIATION	.51	
.02	SE(STD DEV)	.00	
29.90	MINIMUM	11.77	
39.50	MAXIMUM	15.55	
SYMMETRY---VETA I = .00			
KURTOSIS---VETA II = 3.15			
COEF. OF VARIATION = 3.7%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
2	.09	2	.09	29.75	- 29.95	1	.06	1	.06		
2	.09	4	.18	29.95	- 30.15	0	.00	1	.06		
5	.23	9	.41	30.15	- 30.35	0	.00	1	.06		
4	.18	13	.59	30.35	- 30.55	0	.00	1	.06		
6	.27	19	.86	30.55	- 30.75	0	.00	1	.06		
7	.32	26	1.18	30.75	- 30.95	0	.00	1	.06		
35	1.59	61	2.76	30.95	- 31.15	1	.06	2	.11		
28	1.27	89	4.03	31.15	- 31.35	0	.00	2	.11		
24	1.09	113	5.12	31.35	- 31.55	1	.06	3	.17		
36	1.63	149	6.75	31.55	- 31.75	3	.17	6	.34		
37	1.68	186	8.42	31.75	- 31.95	1	.06	7	.39		
55	2.49	241	10.91	31.95	- 32.15	7	.39	14	.79		
94	4.26	335	15.17	32.15	- 32.35	5	.28	19	1.07		
119	5.39	454	20.56	32.35	- 32.55	9	.51	28	1.58		
93	4.21	547	24.77	32.55	- 32.75	15	.85	43	2.42		
106	4.80	653	29.57	32.75	- 32.95	17	.96	60	3.38		
127	5.75	780	35.33	32.95	- 33.15	18	1.01	78	4.40		
153	6.93	933	42.26	33.15	- 33.35	27	1.52	105	5.92		
143	6.48	1076	48.73	33.35	- 33.55	39	2.20	144	8.12		
130	5.89	1206	54.62	33.55	- 33.75	44	2.48	188	10.60		
127	5.75	1333	60.37	33.75	- 33.95	63	3.55	251	14.15		
139	6.30	1472	66.67	33.95	- 34.15	67	3.78	318	17.93		
119	5.39	1591	72.06	34.15	- 34.35	85	4.79	403	22.72		
110	4.98	1701	77.04	34.35	- 34.55	97	5.47	500	28.18		
90	4.08	1791	81.11	34.55	- 34.75	66	3.72	566	31.91		
73	3.31	1864	84.42	34.75	- 34.95	99	5.58	665	37.49		
78	3.53	1942	87.95	34.95	- 35.15	107	6.03	772	43.52		
69	3.13	2011	91.08	35.15	- 35.35	110	6.20	882	49.72		
45	2.04	2056	93.12	35.35	- 35.55	138	7.78	1020	57.50		
35	1.59	2091	94.70	35.55	- 35.75	113	6.37	1133	63.87		
20	.91	2111	95.61	35.75	- 35.95	87	4.90	1220	68.77		
29	1.31	2140	96.92	35.95	- 36.15	105	5.92	1325	74.69		
13	.59	2153	97.51	36.15	- 36.35	71	4.00	1396	78.69		
18	.82	2171	98.32	36.35	- 36.55	80	4.51	1476	83.20		
13	.59	2184	98.91	36.55	- 36.75	66	3.72	1542	86.92		
5	.23	2189	99.14	36.75	- 36.95	51	2.87	1593	89.80		
8	.36	2197	99.50	36.95	- 37.15	40	2.25	1633	92.05		
1	.05	2198	99.55	37.15	- 37.35	36	2.03	1669	94.08		
4	.18	2202	99.73	37.35	- 37.55	31	1.75	1700	95.83		
1	.05	2203	99.77	37.55	- 37.75	14	.79	1714	96.62		
1	.05	2204	99.82	37.75	- 37.95	17	.96	1731	97.58		
1	.05	2205	99.86	37.95	- 38.15	12	.68	1743	98.25		
1	.05	2206	99.91	38.15	- 38.35	8	.45	1751	98.70		
0	.00	2206	99.91	38.35	- 38.55	9	.51	1760	99.21		
1	.05	2207	99.95	38.55	- 38.75	4	.23	1764	99.44		
0	.00	2207	99.95	38.75	- 38.95	5	.28	1769	99.72		
0	.00	2207	99.95	38.95	- 39.15	2	.11	1771	99.83		
1	.05	2208	100.00	39.15	- 39.35	2	.11	1773	99.94		
				39.35	- 39.55	1	.06	1774	100.00		

## (17) BITRAGION CRINION ARC

The surface distance between the right and left trignon landmarks across the top of the forehead at the lowest point of the hairline (crinion) is measured with a tape.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
28.24	11.12	1ST	30.07	11.84	
28.56	11.24	2ND	30.34	11.95	
28.75	11.32	3RD	30.52	12.02	
29.01	11.42	5TH	30.77	12.11	
29.40	11.58	10TH	31.16	12.27	
29.66	11.68	15TH	31.43	12.37	
29.86	11.76	20TH	31.65	12.46	
30.03	11.82	25TH	31.83	12.53	
30.19	11.89	30TH	32.00	12.60	
30.33	11.94	35TH	32.16	12.66	
30.47	12.00	40TH	32.31	12.72	
30.60	12.05	45TH	32.46	12.78	
30.73	12.10	50TH	32.60	12.84	
30.87	12.15	55TH	32.75	12.89	
31.00	12.20	60TH	32.90	12.95	
31.14	12.26	65TH	33.06	13.01	
31.29	12.32	70TH	33.22	13.08	
31.45	12.38	75TH	33.40	13.15	
31.64	12.45	80TH	33.60	13.23	
31.85	12.54	85TH	33.84	13.32	
32.13	12.65	90TH	34.15	13.44	
32.55	12.82	95TH	34.61	13.63	
32.83	12.93	97TH	34.92	13.75	
33.04	13.01	98TH	35.15	13.84	
33.38	13.14	99TH	35.52	13.99	

# BITRAGION CRINION ARC

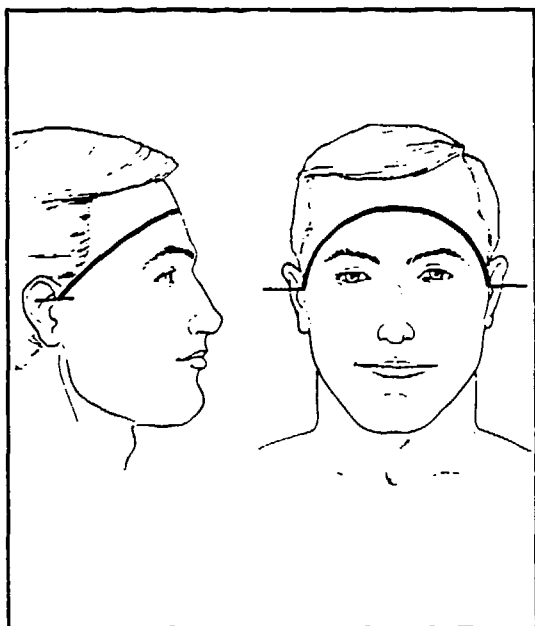
FEMALES			
CM		INCHES	
30.75	MEAN VALUE	12.11	
.02	SE(MEAN)	.00	
1.07	STD DEVIATION	.42	
.02	SE(STD DEV)	.00	
26.70	MINIMUM	10.51	
34.70	MAXIMUM	13.66	
SYMMETRY---VETA I = .08			
KURTOSIS---VETA II = 3.20			
COEF. OF VARIATION = 3.5%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
32.64	MEAN VALUE	12.85	
.03	SE(MEAN)	.00	
1.16	STD DEVIATION	.46	
.02	SE(STD DEV)	.00	
29.30	MINIMUM	11.54	
37.00	MAXIMUM	14.57	
SYMMETRY---VETA I = .17			
KURTOSIS---VETA II = 3.01			
COEF. OF VARIATION = 3.6%			
NUMBER OF SUBJECTS = 1749			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	26.55 -	26.75						
1	.05	2	.09	26.75 -	26.95						
0	.00	2	.09	26.95 -	27.15						
0	.00	2	.09	27.15 -	27.35						
2	.09	4	.18	27.35 -	27.55						
1	.05	5	.23	27.55 -	27.75						
2	.09	7	.32	27.75 -	27.95						
9	.41	16	.72	27.95 -	28.15						
12	.54	28	1.27	28.15 -	28.35						
16	.72	44	1.99	28.35 -	28.55						
26	1.18	70	3.17	28.55 -	28.75						
24	1.09	94	4.26	28.75 -	28.95						
36	1.63	130	5.89	28.95 -	29.15						
75	3.40	205	9.28	29.15 -	29.35	1	.06	1	.06		
77	3.49	282	12.77	29.35 -	29.55	3	.17	4	.23		
96	4.35	378	17.12	29.55 -	29.75	1	.06	5	.29		
109	4.94	487	22.06	29.75 -	29.95	7	.40	12	.69		
149	6.75	636	28.80	29.95 -	30.15	8	.46	20	1.14		
139	6.30	775	35.10	30.15 -	30.35	18	1.03	38	2.17		
176	7.97	951	43.07	30.35 -	30.55	18	1.03	56	3.20		
159	7.20	1110	50.27	30.55 -	30.75	25	1.43	81	4.63		
161	7.29	1271	57.56	30.75 -	30.95	40	2.29	121	6.92		
182	8.24	1453	65.81	30.95 -	31.15	51	2.92	172	9.83		
157	7.11	1610	72.92	31.15 -	31.35	62	3.54	234	13.38		
129	5.84	1739	78.76	31.35 -	31.55	75	4.29	309	17.67		
92	4.17	1831	82.93	31.55 -	31.75	77	4.40	386	22.07		
83	3.76	1914	86.68	31.75 -	31.95	101	5.77	487	27.84		
70	3.17	1984	89.86	31.95 -	32.15	123	7.03	610	34.88		
64	2.90	2048	92.75	32.15 -	32.35	111	6.35	721	41.22		
46	2.08	2094	94.84	32.35 -	32.55	123	7.03	844	48.26		
37	1.68	2131	96.51	32.55 -	32.75	110	6.29	954	54.55		
25	1.13	2156	97.64	32.75 -	32.95	121	6.92	1075	61.46		
22	1.00	2178	98.64	32.95 -	33.15	123	7.03	1198	68.50		
6	.27	2184	98.91	33.15 -	33.35	102	5.83	1300	74.33		
11	.50	2195	99.41	33.35 -	33.55	82	4.69	1382	79.02		
5	.23	2200	99.64	33.55 -	33.75	76	4.35	1458	83.36		
4	.18	2204	99.82	33.75 -	33.95	65	3.72	1523	87.08		
0	.00	2204	99.82	33.95 -	34.15	48	2.74	1571	89.82		
2	.09	2206	99.91	34.15 -	34.35	37	2.12	1608	91.94		
0	.00	2206	99.91	34.35 -	34.55	44	2.52	1652	94.45		
2	.09	2208	100.00	34.55 -	34.75	27	1.54	1679	96.00		
				34.75 -	34.95	19	1.09	1698	97.08		
				34.95 -	35.15	17	.97	1715	98.06		
				35.15 -	35.35	14	.80	1729	98.86		
				35.35 -	35.55	3	.17	1732	99.03		
				35.55 -	35.75	9	.51	1741	99.54		
				35.75 -	35.95	3	.17	1744	99.71		
				35.95 -	36.15	2	.11	1746	99.83		
				36.15 -	36.35	0	.00	1746	99.83		
				36.35 -	36.55	1	.06	1747	99.89		
				36.55 -	36.75	0	.00	1747	99.89		
				36.75 -	36.95	1	.06	1748	99.94		
				36.95 -	37.15	1	.06	1749	100.00		

## (18) BITRAGON FRONTAL ARC

The surface distance between the right and left tragon landmarks across the forehead just above the ridges of the eyebrow is measured with a tape.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
26.45	10.41	1ST	28.18	11.09
26.74	10.53	2ND	28.38	11.17
26.93	10.60	3RD	28.52	11.23
27.17	10.70	5TH	28.73	11.31
27.54	10.84	10TH	29.07	11.45
27.78	10.94	15TH	29.31	11.54
27.97	11.01	20TH	29.51	11.62
28.13	11.08	25TH	29.69	11.69
28.28	11.13	30TH	29.85	11.75
28.41	11.18	35TH	29.99	11.81
28.54	11.23	40TH	30.14	11.86
28.66	11.28	45TH	30.27	11.92
28.78	11.33	50TH	30.41	11.97
28.90	11.38	55TH	30.55	12.03
29.02	11.43	60TH	30.69	12.08
29.15	11.48	65TH	30.83	12.14
29.29	11.53	70TH	30.98	12.20
29.43	11.59	75TH	31.15	12.26
29.60	11.65	80TH	31.34	12.34
29.80	11.73	85TH	31.55	12.42
30.06	11.83	90TH	31.82	12.53
30.45	11.99	95TH	32.23	12.69
30.72	12.09	97TH	32.50	12.79
30.92	12.17	98TH	32.69	12.87
31.25	12.30	99TH	33.01	13.00

## BITRAGION FRONTAL ARC

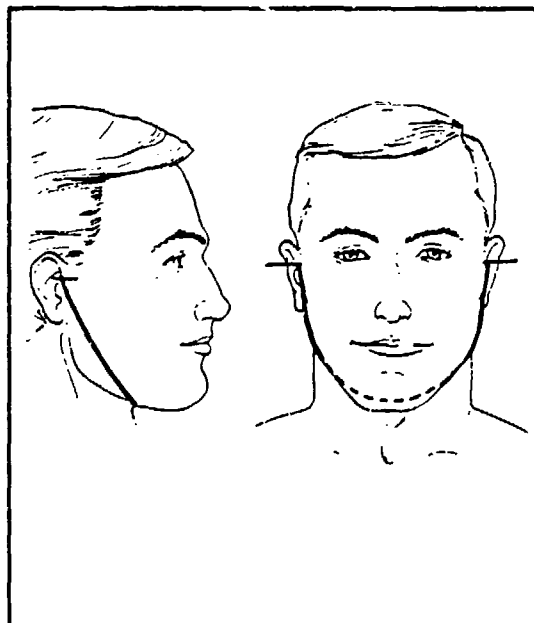
FEMALES		
<u>CM</u>		<u>INCHES</u>
28.79	MEAN VALUE	11.33
.02	SE (MEAN)	.00
.99	STD DEVIATION	.39
.00	SE (STD DEV)	.00
25.00	MINIMUM	9.84
32.00	MAXIMUM	12.60
SYMMETRY----	VETA I	= .06
KURTOSIS----	VETA II	= 3.22
COEF. OF VARIATION		= 3.4%
NUMBER OF SUBJECTS		= 2208

MALES		
<u>CM</u>		<u>INCHES</u>
30.43	MEAN VALUE	11.98
.03	SE (MEAN)	.00
1.06	STD DEVIATION	.42
.02	SE (STD DEV)	.00
27.10	MINIMUM	10.67
34.80	MAXIMUM	13.70
SYMMETRY---	VETA I	= .18
KURTOSIS---	VETA II	= 3.00
COEF. OF VARIATION		= 3.5%
NUMBER OF SUBJECTS		= 1774

FEMALES					MALES				
F	FPct	CumF	CumFPct	CENTIMETERS	F	FPct	CumF	CumFPct	
1	.05	1	.05	24.95 - 25.15					
0	.00	1	.05	25.15 - 25.35					
1	.05	2	.09	25.35 - 25.55					
1	.05	3	.14	25.55 - 25.75					
3	.14	6	.27	25.75 - 25.95					
5	.23	11	.50	25.95 - 26.15					
4	.18	15	.68	26.15 - 26.35					
12	.54	27	1.22	26.35 - 26.55					
21	.95	48	2.17	26.55 - 26.75					
22	1.00	70	3.17	26.75 - 26.95					
33	1.49	103	4.66	26.95 - 27.15	1	.06	1	.06	
48	2.17	151	6.84	27.15 - 27.35	0	.00	1	.06	
78	3.53	229	10.37	27.35 - 27.55	2	.11	3	.17	
80	3.62	309	13.99	27.55 - 27.75	2	.11	5	.28	
96	4.35	405	18.34	27.75 - 27.95	3	.17	8	.45	
157	7.11	562	25.45	27.95 - 28.15	9	.51	17	.96	
174	7.88	736	33.33	28.15 - 28.35	11	.62	28	1.58	
173	7.84	909	41.17	28.35 - 28.55	28	1.58	56	3.16	
167	7.56	1076	48.73	28.55 - 28.75	41	2.31	97	5.47	
167	7.56	1243	56.30	28.75 - 28.95	38	2.14	135	7.61	
197	8.92	1440	65.22	28.95 - 29.15	65	3.66	200	11.27	
158	7.16	1598	72.37	29.15 - 29.35	82	4.67	282	15.90	
148	6.70	1746	79.08	29.35 - 29.55	93	5.24	375	21.14	
104	4.71	1850	83.79	29.55 - 29.75	102	5.75	477	26.89	
92	4.17	1942	87.95	29.75 - 29.95	109	6.14	586	33.03	
80	3.62	2022	91.58	29.95 - 30.15	136	7.67	722	40.70	
61	2.76	2083	94.34	30.15 - 30.35	134	7.55	856	48.25	
38	1.72	2121	96.06	30.35 - 30.55	119	6.71	975	54.96	
25	1.13	2146	97.19	30.55 - 30.75	129	7.27	1104	62.23	
16	.72	2162	97.92	30.75 - 30.95	109	6.14	1213	68.38	
22	1.00	2184	98.91	30.95 - 31.15	112	6.31	1325	74.69	
5	.23	2189	99.14	31.15 - 31.35	103	5.81	1428	80.50	
9	.41	2198	99.55	31.35 - 31.55	86	4.85	1514	85.34	
6	.27	2204	99.82	31.55 - 31.75	72	4.06	1586	89.40	
2	.09	2206	99.91	31.75 - 31.95	44	2.48	1630	91.88	
2	.09	2208	100.00	31.95 - 32.15	44	2.48	1674	94.36	
				32.15 - 32.35	26	1.47	1700	95.83	
				32.35 - 32.55	25	1.41	1725	97.24	
				32.55 - 32.75	20	1.13	1745	98.37	
				32.75 - 32.95	9	.51	1754	98.87	
				32.95 - 33.15	8	.45	1762	99.32	
				33.15 - 33.35	4	.23	1766	99.55	
				33.35 - 33.55	3	.17	1769	99.72	
				33.55 - 33.75	0	.00	1769	99.72	
				33.75 - 33.95	3	.17	1772	99.89	
				33.95 - 34.15	1	.06	1773	99.94	
				34.15 - 34.35	0	.00	1773	99.94	
				34.35 - 34.55	0	.00	1773	99.94	
				34.55 - 34.75	0	.00	1773	99.94	
				34.75 - 34.95	1	.06	1774	100.00	

## (19) BITRAGON SUBMANDIBULAR ARC

The surface distance between the right and left tragon landmarks across the submandibular landmark at the juncture of the jaw and the neck is measured with a tape. The head is in the Frankfort plane and the teeth are lightly occluded.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
24.78	9.75	1ST	27.15	10.69	
25.08	9.87	2ND	27.54	10.84	
25.28	9.95	3RD	27.78	10.94	
25.55	10.06	5TH	28.11	11.07	
25.99	10.23	10TH	28.60	11.26	
26.28	10.35	15TH	28.94	11.39	
26.52	10.44	20TH	29.20	11.50	
26.73	10.52	25TH	29.43	11.59	
26.92	10.60	30TH	29.64	11.67	
27.09	10.66	35TH	29.83	11.74	
27.25	10.73	40TH	30.02	11.82	
27.41	10.79	45TH	30.20	11.89	
27.57	10.86	50TH	30.38	11.96	
27.73	10.92	55TH	30.56	12.03	
27.89	10.98	60TH	30.74	12.10	
28.06	11.05	65TH	30.94	12.18	
28.24	11.12	70TH	31.15	12.26	
28.44	11.20	75TH	31.37	12.35	
28.66	11.28	80TH	31.63	12.45	
28.91	11.38	85TH	31.93	12.57	
29.24	11.51	90TH	32.32	12.72	
29.74	11.71	95TH	32.90	12.95	
30.07	11.84	97TH	33.28	13.10	
30.32	11.94	98TH	33.56	13.21	
30.73	12.10	99TH	34.01	13.39	

# BITRAGON SUBMANDIBULAR ARC

FEMALES			
<u>CM</u>		<u>INCHES</u>	
27.60	MEAN VALUE	10.87	
.03	SE(MEAN)	.00	
1.28	STD DEVIATION	.50	
.02	SE(STD DEV)	.00	
23.50	MINIMUM	9.25	
32.90	MAXIMUM	12.95	
SYMMETRY---VETA I = .17			
KURTOSIS---VETA II = 3.14			
COEF. OF VARIATION = 4.6%			
NUMBER OF SUBJECTS = 2208			

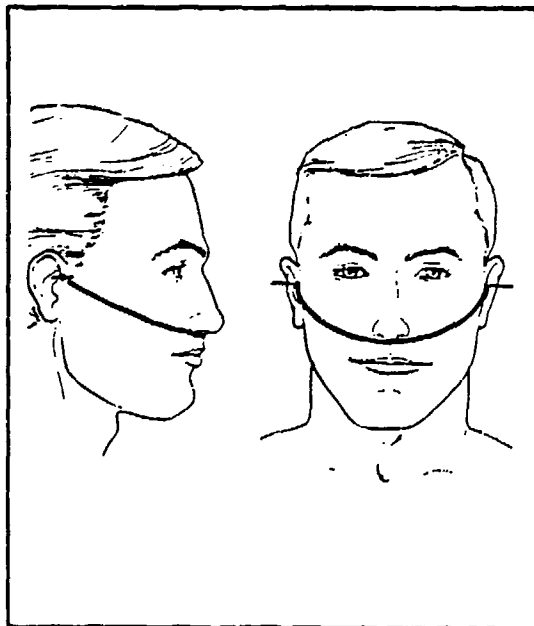
MALES			
<u>CM</u>		<u>INCHES</u>	
30.42	MEAN VALUE	11.98	
.03	SE(MEAN)	.00	
1.45	STD DEVIATION	.57	
.02	SE(STD DEV)	.00	
26.10	MINIMUM	10.28	
37.30	MAXIMUM	14.69	
SYMMETRY---VETA I = .21			
KURTOSIS---VETA II = 3.24			
COEF. OF VARIATION = 4.8%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE									
FEMALES					MALES				
F	FPct	CumF	CumFPct	CENTIMETERS	F	FPct	CumF	CumFPct	
1	.05	1	.05	23.25 - 23.75					
6	.27	7	.32	23.75 - 24.25					
17	.77	24	1.09	24.25 - 24.75					
35	1.59	59	2.67	24.75 - 25.25					
90	4.08	149	6.75	25.25 - 25.75					
178	8.06	327	14.81	25.75 - 26.25	3	.17	3	.17	
246	11.14	573	25.95	26.25 - 26.75	3	.17	6	.34	
300	13.59	873	39.54	26.75 - 27.25	14	.79	20	1.13	
344	15.58	1217	55.12	27.25 - 27.75	27	1.52	47	2.65	
332	15.04	1549	70.15	27.75 - 28.25	62	3.49	109	6.14	
265	12.00	1614	82.16	28.25 - 28.75	97	5.47	206	11.61	
182	8.24	1996	90.40	28.75 - 29.25	163	9.19	369	20.80	
103	4.66	2099	95.06	29.25 - 29.75	206	11.61	575	32.41	
62	2.81	2161	97.87	29.75 - 30.25	226	12.74	801	45.15	
25	1.13	2186	99.00	30.25 - 30.75	274	15.45	1075	60.60	
10	.45	2196	99.46	30.75 - 31.25	224	12.63	1299	73.22	
8	.36	2204	99.82	31.25 - 31.75	160	9.02	1459	82.24	
2	.09	2206	99.91	31.75 - 32.25	123	6.93	1582	89.18	
1	.05	2207	99.95	32.25 - 32.75	81	4.57	1663	93.74	
1	.05	2208	100.00	32.75 - 33.25	56	3.16	1719	96.90	
				33.25 - 33.75	31	1.75	1750	98.65	
				33.75 - 34.25	12	.68	1762	99.32	
				34.25 - 34.75	8	.45	1770	99.77	
				34.75 - 35.25	1	.06	1771	99.83	
				35.25 - 35.75	2	.11	1773	99.94	
				35.75 - 36.25	0	.00	1773	99.94	
				36.25 - 36.75	0	.00	1773	99.94	
				36.75 - 37.25	0	.00	1773	99.94	
				37.25 - 37.75	1	.06	1774	100.00	



## (20) BITRAGION SUBNASALE ARC

The surface distance between the right and left trignon landmarks across the subnasale landmark just under the nose is measured with a tape.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
25.11	9.88	1ST	26.72	10.52
25.38	9.99	2ND	26.97	10.62
25.55	10.06	3RD	27.15	10.69
25.78	10.15	5TH	27.39	10.78
26.14	10.29	10TH	27.78	10.94
26.39	10.39	15TH	28.04	11.04
26.60	10.47	20TH	28.26	11.13
26.78	10.54	25TH	28.44	11.20
26.95	10.61	30TH	28.61	11.26
27.11	10.67	35TH	28.77	11.33
27.26	10.73	40TH	28.91	11.38
27.41	10.79	45TH	29.05	11.44
27.57	10.85	50TH	29.19	11.49
27.72	10.91	55TH	29.33	11.55
27.88	10.98	60TH	29.47	11.60
28.05	11.04	65TH	29.62	11.66
28.22	11.11	70TH	29.77	11.72
28.42	11.19	75TH	29.94	11.79
28.63	11.27	80TH	30.13	11.86
28.88	11.37	85TH	30.35	11.95
29.20	11.49	90TH	30.63	12.06
29.64	11.67	95TH	31.06	12.23
29.91	11.78	97TH	31.34	12.34
30.10	11.85	98TH	31.56	12.43
30.36	11.95	99TH	31.92	12.57

# BITRAGION SUBNASALE ARC

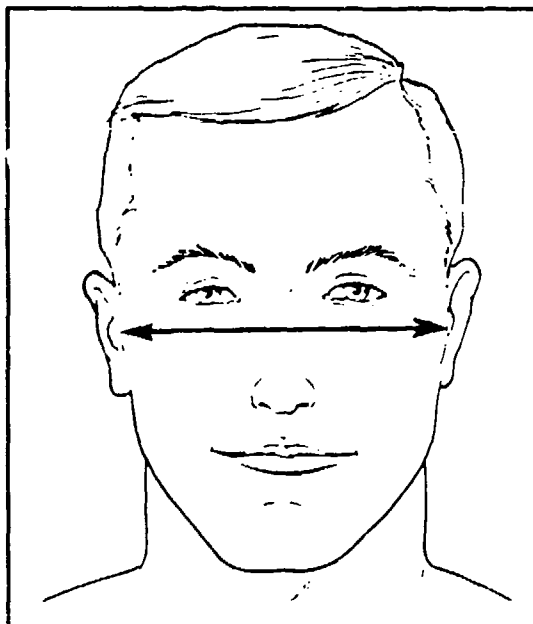
FEMALES			
CM		INCHES	
27.62	MEAN VALUE	10.87	
.02	SE(MEAN)	.00	
1.17	STD DEVIATION	.46	
.02	SE(STD DEV)	.00	
24.20	MINIMUM	9.53	
31.50	MAXIMUM	12.40	
SYMMETRY---VETA I = .18			
KURTOSIS---VETA II = 2.84			
COEF. OF VARIATION = 4.2%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
29.20	MEAN VALUE	11.50	
.03	SE(MEAN)	.00	
1.11	STD DEVIATION	.44	
.02	SE(STD DEV)	.00	
25.50	MINIMUM	10.04	
32.80	MAXIMUM	12.91	
SYMMETRY---VETA I = .08			
KURTOSIS---VETA II = 3.07			
COEF. OF VARIATION = 3.8%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS	F	FPct	CumF
3	.14	3	.14	24.15 - 24.35	1	.06	1
1	.05	4	.18	24.35 - 24.55	1	.06	2
4	.18	8	.36	24.55 - 24.75	1	.06	3
6	.27	14	.63	24.75 - 24.95	1	.06	4
8	.36	22	1.00	24.95 - 25.15	3	.17	7
21	.95	43	1.95	25.15 - 25.35	6	.34	13
30	1.36	73	3.31	25.35 - 25.55	6	.34	19
43	1.95	116	5.25	25.55 - 25.75	11	.62	30
35	1.59	151	6.84	25.75 - 25.95	22	1.24	52
59	2.67	210	9.51	25.95 - 26.15	37	2.09	89
90	4.08	300	13.59	26.15 - 26.35	38	2.14	127
111	5.03	411	18.61	26.35 - 26.55	47	2.65	174
101	4.57	512	23.19	26.55 - 26.75	59	3.33	233
120	5.43	632	28.62	26.75 - 26.95	75	4.23	308
173	7.84	805	36.46	26.95 - 27.15	79	4.45	387
158	7.16	963	43.61	27.15 - 27.35	103	5.81	490
143	6.48	1106	50.09	27.35 - 27.55	127	7.16	617
136	6.16	1242	56.25	27.55 - 27.75	104	5.86	721
105	4.76	1347	61.01	27.75 - 27.95	132	7.44	853
165	7.47	1512	68.48	27.95 - 28.15	127	7.16	980
115	5.21	1627	73.69	28.15 - 28.35	140	7.89	1120
110	4.98	1737	78.67	28.35 - 28.55	117	6.60	1237
94	4.26	1831	82.93	28.55 - 28.75	96	5.41	1333
77	3.49	1908	86.41	28.75 - 28.95	104	5.86	1437
72	3.26	1980	89.67	28.95 - 29.15	84	4.74	1521
55	2.49	2035	92.16	29.15 - 29.35	60	3.30	1581
44	1.99	2079	94.16	29.35 - 29.55	47	2.65	1628
36	1.63	2115	95.79	29.55 - 29.75	30	1.69	1658
21	.95	2136	96.74	29.75 - 29.95	33	1.86	1691
34	1.54	2170	98.28	29.95 - 30.15	33	1.86	1724
19	.86	2189	99.14	30.15 - 30.35	13	.73	1737
4	.18	2193	99.32	30.35 - 30.55	13	.73	1750
6	.27	2199	99.59	30.55 - 30.75	8	.45	1758
4	.18	2203	99.77	30.75 - 30.95	5	.28	1763
1	.05	2204	99.82	30.95 - 31.15	4	.23	1767
2	.09	2206	99.91	31.15 - 31.35	3	.17	1770
2	.09	2208	100.00	31.35 - 31.55	2	.11	1772
				31.55 - 31.75	2	.11	1774
				31.75 - 31.95			
				31.95 - 32.15			
				32.15 - 32.35			
				32.35 - 32.55			
				32.55 - 32.75			
				32.75 - 32.95			

## (21) BIZYGOMATIC BREADTH

The maximum horizontal breadth of the face (between the zygomatic arches) is measured with a spreading caliper.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
12.08	4.75	1ST	12.79	5.03	
12.17	4.79	2ND	12.95	5.10	
12.23	4.82	3RD	13.04	5.14	
12.33	4.85	5TH	13.17	5.19	
12.49	4.92	10TH	13.36	5.26	
12.61	4.96	15TH	13.48	5.31	
12.70	5.00	20TH	13.58	5.35	
12.78	5.03	25TH	13.66	5.38	
12.86	5.06	30TH	13.74	5.41	
12.92	5.09	35TH	13.81	5.44	
12.99	5.11	40TH	13.88	5.47	
13.05	5.14	45TH	13.95	5.49	
13.11	5.16	50TH	14.02	5.52	
13.18	5.19	55TH	14.09	5.55	
13.24	5.21	60TH	14.16	5.58	
13.31	5.24	65TH	14.24	5.61	
13.38	5.27	70TH	14.32	5.64	
13.45	5.30	75TH	14.41	5.67	
13.54	5.33	80TH	14.51	5.71	
13.64	5.37	85TH	14.63	5.76	
13.77	5.42	90TH	14.78	5.82	
13.98	5.50	95TH	15.01	5.91	
14.12	5.56	97TH	15.15	5.97	
14.24	5.61	98TH	15.26	6.01	
14.43	5.68	99TH	15.42	6.07	

# BIZYGOMATIC BREADTH

## FEMALES

CM		INCHES
13.13	MEAN VALUE	5.17
.00	SE(MEAN)	.00
.50	STD DEVIATION	.20
.00	SE(STD DEV)	.00
11.70	MINIMUM	4.61
15.00	MAXIMUM	5.91

SYMMETRY---VETA I = .26  
 KURTOSIS---VETA II = 3.24  
 COEF. OF VARIATION = 3.8%  
 NUMBER OF SUBJECTS = 2208

## MALES

CM		INCHES
14.05	MEAN VALUE	5.53
.00	SE(MEAN)	.00
.56	STD DEVIATION	.22
.00	SE(STD DEV)	.00
11.80	MINIMUM	4.65
16.10	MAXIMUM	6.34

SYMMETRY---VETA I = .18  
 KURTOSIS---VETA II = 3.15  
 COEF. OF VARIATION = 4.0%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
4	.18	4	.18
4	.18	8	.36
5	.23	13	.59
5	.23	18	.82
18	.82	36	1.63
34	1.54	70	3.17
53	2.40	123	5.57
69	3.13	192	8.70
67	3.03	259	11.73
117	5.30	376	17.03
136	6.16	512	23.19
156	7.07	668	30.25
141	6.39	809	36.64
180	8.15	989	44.79
153	7.38	1152	52.17
178	8.06	1330	60.24
179	8.11	1509	68.34
147	6.66	1656	75.00
122	5.53	1778	80.53
110	4.98	1888	85.51
88	3.99	1976	89.49
61	2.85	2039	92.35
50	2.26	2089	94.61
36	1.63	2125	96.24
21	.95	2146	97.19
18	.82	2164	98.01
17	.77	2181	98.78
7	.32	2188	99.09
4	.18	2192	99.28
5	.23	2197	99.50
2	.09	2199	99.59
5	.23	2204	99.82
2	.09	2206	99.91
2	.09	2208	100.00

### CENTIMETERS

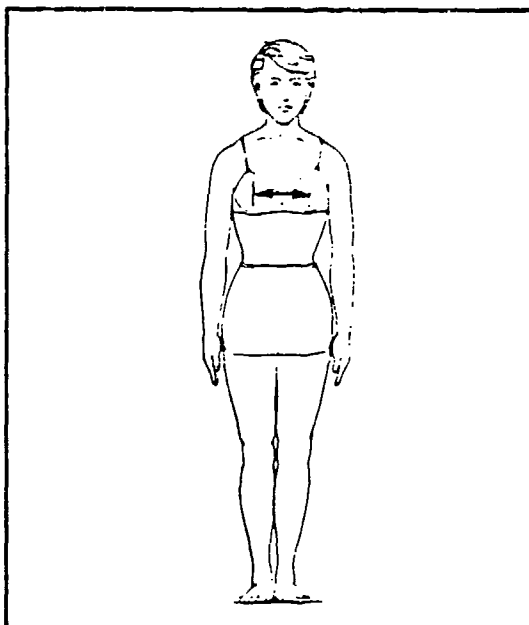
11.65 - 11.75
11.75 - 11.85
11.85 - 11.95
11.95 - 12.05
12.05 - 12.15
12.15 - 12.25
12.25 - 12.35
12.35 - 12.45
12.45 - 12.55
12.55 - 12.65
12.65 - 12.75
12.75 - 12.85
12.85 - 12.95
12.95 - 13.05
13.05 - 13.15
13.15 - 13.25
13.25 - 13.35
13.35 - 13.45
13.45 - 13.55
13.55 - 13.65
13.65 - 13.75
13.75 - 13.85
13.85 - 13.95
13.95 - 14.05
14.05 - 14.15
14.15 - 14.25
14.25 - 14.35
14.35 - 14.45
14.45 - 14.55
14.55 - 14.65
14.65 - 14.75
14.75 - 14.85
14.85 - 14.95
14.95 - 15.05
15.05 - 15.15
15.15 - 15.25
15.25 - 15.35
15.35 - 15.45
15.45 - 15.55
15.55 - 15.65
15.65 - 15.75
15.75 - 15.85
15.85 - 15.95
15.95 - 16.05
16.05 - 16.15

### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
0	.00	1	.06
0	.00	1	.06
0	.00	1	.06
1	.06	2	.11
0	.00	2	.11
0	.00	2	.11
1	.06	3	.17
4	.23	7	.39
9	.51	16	.90
6	.34	22	1.24
14	.79	36	2.03
11	.62	47	2.65
36	2.03	83	6.68
40	2.25	123	6.93
56	3.16	179	10.09
53	2.99	232	13.08
80	4.51	312	17.59
116	6.54	428	24.13
132	7.44	560	31.57
121	6.82	681	38.39
116	6.54	797	44.93
121	6.82	918	51.75
121	6.82	1039	58.57
123	6.93	1162	65.50
111	6.26	1273	71.76
95	5.36	1368	77.11
79	4.45	1447	81.57
66	3.72	1513	85.29
72	4.06	1585	89.35
51	2.87	1636	92.22
30	1.69	1666	93.91
33	1.86	1699	95.77
25	1.41	1724	97.18
14	.79	1738	97.97
10	.56	1748	98.53
10	.56	1758	99.10
8	.45	1766	99.55
0	.00	1766	99.55
5	.28	1771	99.83
1	.06	1772	99.89
0	.00	1772	99.89
0	.00	1772	99.89
2	.11	1774	100.00

## (22) BUSTPOINT/THELION-BUSTPOINT/THELION BREADTH

The distance between the right and left bustpoint landmarks on women and the center of the nipples (thelion) on men is measured with a beam caliper. The subject stands erect looking straight ahead. The shoulders and upper extremities are relaxed. The measurement is made at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
14.88	5.86	1ST	17.39	6.85	
15.25	6.01	2ND	17.83	7.02	
15.50	6.10	3RD	18.13	7.14	
15.85	6.24	5TH	18.54	7.30	
16.41	6.46	10TH	19.18	7.55	
16.80	6.61	15TH	19.63	7.73	
17.11	6.74	20TH	19.98	7.87	
17.38	6.84	25TH	20.29	7.99	
17.62	6.94	30TH	20.57	8.10	
17.84	7.02	35TH	20.82	8.20	
18.05	7.11	40TH	21.07	8.29	
18.26	7.19	45TH	21.30	8.39	
18.46	7.27	50TH	21.54	8.48	
18.66	7.35	55TH	21.77	8.57	
18.87	7.43	60TH	22.01	8.67	
19.08	7.51	65TH	22.26	8.76	
19.31	7.60	70TH	22.52	8.87	
19.55	7.70	75TH	22.81	8.98	
19.83	7.81	80TH	23.14	9.11	
20.15	7.93	85TH	23.53	9.26	
20.55	8.09	90TH	24.03	9.46	
21.18	8.34	95TH	24.82	9.77	
21.59	8.50	97TH	25.36	9.99	
21.91	8.63	98TH	25.79	10.15	
22.43	8.83	99TH	26.49	10.43	

# BUSTPOINT/THELION-BUSTPOINT/THELION BREADTH

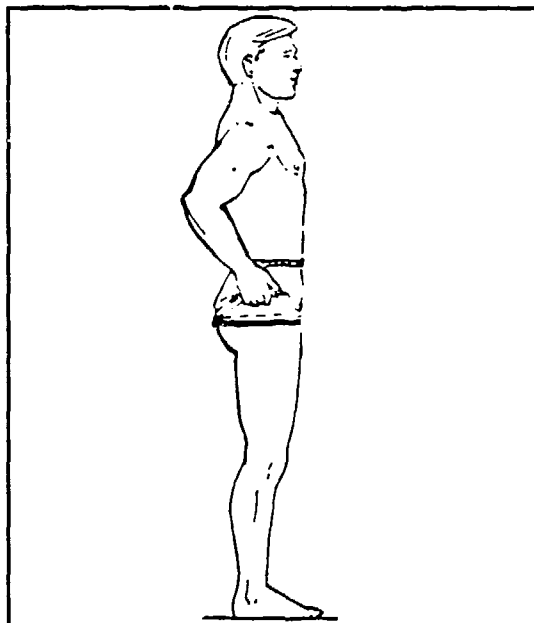
FEMALES			
<u>CM</u>		<u>INCHES</u>	
18.48	MEAN VALUE	7.28	
.03	SE (MEAN)	.00	
1.62	STD DEVIATION	.64	
.02	SE (STD DEV)	.00	
12.80	MINIMUM	5.04	
24.10	MAXIMUM	9.49	
SYMMETRY---VETA I = .11			
KURTOSIS---VETA II = 3.05			
COEF. OF VARIATION = 8.8%			
NUMBER OF SUBJECTS = 2208			

MALES			
<u>CM</u>		<u>INCHES</u>	
21.59	MEAN VALUE	8.50	
.04	SE (MEAN)	.02	
1.89	STD DEVIATION	.74	
.03	SE (STD DEV)	.00	
16.50	MINIMUM	6.50	
28.50	MAXIMUM	11.22	
SYMMETRY---VETA I = .20			
KURTOSIS---VETA II = 3.05			
COEF. OF VARIATION = 8.8%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct	CumF	CumFPct		
2	.09	2	.09	12.75 -	13.25						
1	.05	3	.14	13.25 -	13.75						
2	.09	5	.23	13.75 -	14.25						
12	.54	17	.77	14.25 -	14.75						
23	1.04	40	1.81	14.75 -	15.25						
51	2.31	91	4.12	15.25 -	15.75						
89	4.03	180	8.15	15.75 -	16.25						
131	5.93	311	14.09	16.25 -	16.75	4	.23	4	.23		
171	7.74	482	21.83	16.75 -	17.25	9	.51	13	.73		
250	11.32	732	33.15	17.25 -	17.75	19	1.07	32	1.80		
253	11.46	985	44.61	17.75 -	18.25	26	1.47	58	3.27		
281	12.73	1266	57.34	18.25 -	18.75	53	2.99	111	6.26		
254	11.50	1520	68.84	18.75 -	19.25	62	3.49	173	9.75		
218	9.87	1738	78.71	19.25 -	19.75	119	6.71	292	16.46		
164	7.43	1902	86.14	19.75 -	20.25	137	7.72	429	24.18		
131	5.93	2033	92.07	20.25 -	20.75	168	9.47	597	33.65		
72	3.26	2105	95.34	20.75 -	21.25	190	10.71	787	44.36		
47	2.13	2152	97.46	21.25 -	21.75	170	9.58	957	53.95		
27	1.22	2179	98.69	21.75 -	22.25	186	10.48	1143	64.43		
13	.59	2192	99.28	22.25 -	22.75	169	9.53	1312	73.96		
11	.50	2203	99.77	22.75 -	23.25	130	7.33	1442	81.29		
3	.14	2206	99.91	23.25 -	23.75	117	6.60	1559	87.88		
2	.09	2208	100.00	23.75 -	24.25	71	4.00	1630	91.88		
				24.25 -	24.75	55	3.10	1685	94.98		
				24.75 -	25.25	33	1.86	1718	96.84		
				25.25 -	25.75	18	1.01	1736	97.86		
				25.75 -	26.25	14	.79	1750	98.65		
				26.25 -	26.75	16	.90	1766	99.55		
				26.75 -	27.25	6	.34	1772	99.89		
				27.25 -	27.75	0	.00	1772	99.89		
				27.75 -	28.25	0	.00	1772	99.89		
				28.25 -	28.75	2	.11	1774	100.00		

## (23) BUTTOCK CIRCUMFERENCE

The horizontal circumference of the trunk at the level of the maximum protrusion of the right buttock is measured with a tape. The subject stands erect with the heels together and the weight equally distributed on both feet.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
84.14	33.13	1ST	84.76	33.37	
85.25	33.56	2ND	86.34	33.99	
86.04	33.87	3RD	87.31	34.38	
87.18	34.32	5TH	88.63	34.89	
89.09	35.08	10TH	90.64	35.69	
90.45	35.61	15TH	92.02	36.23	
91.55	36.04	20TH	93.12	36.66	
92.51	36.42	25TH	94.08	37.04	
93.38	36.77	30TH	94.96	37.38	
94.20	37.08	35TH	95.78	37.71	
94.97	37.39	40TH	96.57	38.02	
95.72	37.69	45TH	97.34	38.32	
96.47	37.98	50TH	98.12	38.63	
97.23	38.28	55TH	98.91	38.94	
97.99	38.58	60TH	99.71	39.26	
98.79	38.89	65TH	100.56	39.59	
99.63	39.23	70TH	101.46	39.94	
100.56	39.59	75TH	102.45	40.33	
101.61	40.00	80TH	103.56	40.77	
102.85	40.49	85TH	104.87	41.29	
104.47	41.13	90TH	106.54	41.95	
107.00	42.13	95TH	109.03	42.92	
108.76	42.82	97TH	110.63	43.55	
110.13	43.36	98TH	111.79	44.01	
112.45	44.27	99TH	113.57	44.71	

# BUTTOCK CIRCUMFERENCE

FEMALES			
CM		INCHES	
96.69	MEAN VALUE	38.07	
.13	SE (MEAN)	.05	
6.02	STD DEVIATION	2.37	
.09	SE (STD DEV)	.04	
78.70	MINIMUM	30.98	
118.90	MAXIMUM	46.81	
SYMMETRY---VETA I = .28			
KURTOSIS---VETA II = 3.08			
COEF. OF VARIATION = 6.2%			
NUMBER OF SUBJECTS = 2208			

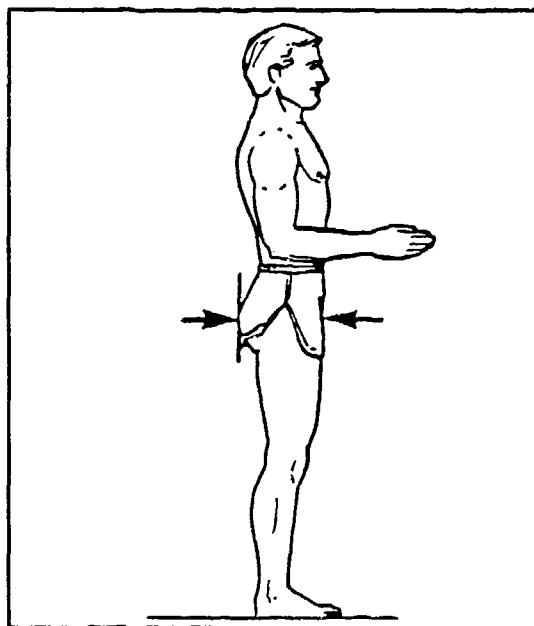
MALES			
CM		INCHES	
98.37	MEAN VALUE	38.73	
.15	SE (MEAN)	.06	
6.22	STD DEVIATION	2.45	
.10	SE (STD DEV)	.04	
80.50	MINIMUM	31.69	
123.90	MAXIMUM	48.78	
SYMMETRY---VETA I = .23			
KURTOSIS---VETA II = 3.10			
COEF. OF VARIATION = 6.3%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE									
FEMALES					MALES				
F	FPct	CumF	CumFPct	CENTIMETERS	F	FPct	CumF	CumFPct	
1	.05	1	.05	78.55 - 79.55	1	.06	1	.06	
1	.05	2	.09	79.55 - 80.55	2	.11	3	.17	
3	.14	5	.23	80.55 - 81.55	3	.17	6	.34	
3	.14	8	.36	81.55 - 82.55	4	.23	10	.56	
8	.36	16	.72	82.55 - 83.55	3	.17	13	.73	
13	.59	29	1.31	83.55 - 84.55	14	.79	27	1.52	
20	.91	49	2.22	84.55 - 85.55	13	.73	40	2.25	
24	1.09	73	3.31	85.55 - 86.55	18	1.01	58	3.27	
51	2.31	124	5.62	86.55 - 87.55	22	1.24	80	4.51	
61	2.76	185	8.38	87.55 - 88.55	38	2.14	118	6.65	
73	3.31	258	11.69	88.55 - 89.55	47	2.65	165	9.30	
92	4.17	350	15.85	89.55 - 90.55	63	3.55	228	12.85	
100	4.53	450	20.38	90.55 - 91.55	101	5.69	329	18.55	
102	4.62	552	25.00	91.55 - 92.55	80	4.51	409	23.06	
140	6.34	692	31.34	92.55 - 93.55	91	5.13	500	28.18	
139	6.30	831	37.64	93.55 - 94.55	108	6.09	608	34.27	
154	6.97	985	44.61	94.55 - 95.55	108	6.09	716	40.36	
136	6.16	1121	50.77	95.55 - 96.55	105	5.92	821	46.28	
144	6.52	1265	57.29	96.55 - 97.55	111	6.26	932	52.54	
143	6.48	1408	63.77	97.55 - 98.55	106	5.98	1038	58.51	
116	5.25	1524	69.02	98.55 - 99.55	103	5.81	1141	64.32	
118	5.34	1642	74.37	99.55 - 100.55	100	5.64	1241	69.95	
97	4.39	1739	78.76	100.55 - 101.55	97	5.47	1338	75.42	
112	5.07	1851	83.83	101.55 - 102.55	82	4.62	1420	80.05	
73	3.31	1924	87.14	102.55 - 103.55	74	4.17	1494	84.22	
75	3.40	1999	90.53	103.55 - 104.55	52	2.93	1546	87.15	
50	2.26	2049	92.80	104.55 - 105.55	56	3.16	1602	90.30	
39	1.77	2088	94.57	105.55 - 106.55	37	2.09	1639	92.39	
30	1.36	2118	95.92	106.55 - 107.55	42	2.37	1681	94.76	
29	1.31	2147	97.24	107.55 - 108.55	21	1.18	1702	95.94	
7	.32	2154	97.55	108.55 - 109.55	18	1.01	1720	96.96	
14	.63	2168	98.19	109.55 - 110.55	16	.90	1736	97.86	
8	.36	2176	98.55	110.55 - 111.55	9	.51	1745	98.37	
9	.41	2185	98.96	111.55 - 112.55	14	.79	1759	99.15	
7	.32	2192	99.28	112.55 - 113.55	7	.39	1766	99.55	
7	.32	2199	99.59	113.55 - 114.55	2	.11	1768	99.66	
4	.18	2203	99.77	114.55 - 115.55	1	.06	1769	99.72	
0	.00	2203	99.77	115.55 - 116.55	2	.11	1771	99.83	
4	.18	2207	99.95	116.55 - 117.55	0	.00	1771	99.83	
0	.00	2207	99.95	117.55 - 118.55	0	.00	1771	99.83	
1	.05	2208	100.00	118.55 - 119.55	0	.00	1771	99.83	
				119.55 - 120.55	0	.00	1771	99.83	
				120.55 - 121.55	1	.06	1772	99.89	
				121.55 - 122.55	1	.06	1773	99.94	
				122.55 - 123.55	1	.06	1774	100.00	
				123.55 - 124.55					



## (24) BUTTOCK DEPTH

The horizontal depth of the torso at the level of the maximum protrusion of the right buttock is measured using a beam caliper with a fixed paddle blade. The subject stands erect with the heels together and the weight distributed equally on both feet.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
18.52	7.29	1ST	20.43	8.04
18.93	7.45	2ND	20.90	8.23
19.21	7.56	3RD	21.20	8.35
19.59	7.71	5TH	21.62	8.51
20.21	7.96	10TH	22.27	8.77
20.64	8.13	15TH	22.72	8.95
20.99	8.26	20TH	23.09	9.09
21.29	8.38	25TH	23.41	9.22
21.56	8.49	30TH	23.71	9.33
21.81	8.59	35TH	23.98	9.44
22.05	8.68	40TH	24.25	9.55
22.29	8.78	45TH	24.51	9.65
22.53	8.87	50TH	24.77	9.75
22.77	8.97	55TH	25.04	9.86
23.03	9.07	60TH	25.31	9.96
23.29	9.17	65TH	25.59	10.08
23.58	9.28	70TH	25.90	10.20
23.91	9.41	75TH	26.23	10.33
24.29	9.56	80TH	26.61	10.48
24.75	9.74	85TH	27.05	10.65
25.39	10.00	90TH	27.61	10.87
26.45	10.41	95TH	28.43	11.19
27.24	10.72	97TH	28.97	11.40
27.87	10.97	98TH	29.36	11.56
28.98	11.41	99TH	29.95	11.79

# BUTTOCK DEPTH

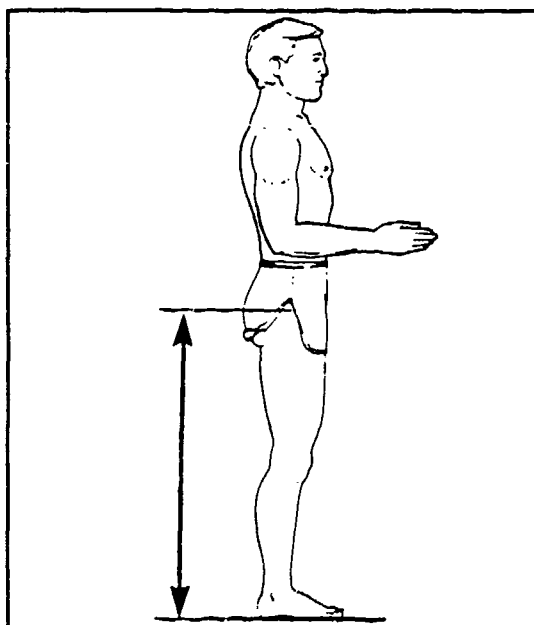
FEMALES			
<u>CM</u>		<u>INCHES</u>	
22.71	MEAN VALUE	8.94	
.04	SE (MEAN)	.02	
2.10	STD DEVIATION	.83	
.03	SE (STD DEV)	.00	
16.90	MINIMUM	6.65	
33.40	MAXIMUM	13.15	
SYMMETRY---VETA I = .62			
KURTOSIS---VETA II = 3.99			
COEF. OF VARIATION = 9.2%			
NUMBER OF SUBJECTS = 2208			

MALES			
<u>CM</u>		<u>INCHES</u>	
24.86	MEAN VALUE	9.79	
.05	SE (MEAN)	.02	
2.07	STD DEVIATION	.82	
.03	SE (STD DEV)	.00	
19.30	MINIMUM	7.60	
35.60	MAXIMUM	14.02	
SYMMETRY---VETA I = .32			
KURTOSIS---VETA II = 3.35			
COEF. OF VARIATION = 8.3%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct	CumF	CumFPct		
3	.14	3	.14	16.75 -	17.25						
5	.23	8	.36	17.25 -	17.75						
6	.27	14	.63	17.75 -	18.25						
15	.68	29	1.31	18.25 -	18.75						
40	1.81	69	3.13	18.75 -	19.25						
64	2.90	133	6.02	19.25 -	19.75	3	.17	3	.17		
100	4.53	233	10.55	19.75 -	20.25	9	.51	12	.68		
136	6.16	369	16.71	20.25 -	20.75	17	.96	29	1.63		
159	7.20	528	23.91	20.75 -	21.25	23	1.30	52	2.93		
203	9.19	731	33.11	21.25 -	21.75	55	3.10	107	6.03		
240	10.87	971	43.98	21.75 -	22.25	69	3.89	176	9.92		
225	10.19	1196	54.17	22.25 -	22.75	93	5.24	269	15.16		
222	10.05	1418	64.22	22.75 -	23.25	123	6.93	392	22.10		
198	8.97	1616	73.19	23.25 -	23.75	153	8.62	545	30.72		
166	7.52	1782	80.71	23.75 -	24.25	174	9.81	719	40.53		
103	4.66	1885	85.37	24.25 -	24.75	161	9.08	880	49.61		
78	3.53	1963	88.90	24.75 -	25.25	163	9.19	1043	58.79		
63	2.85	2026	91.76	25.25 -	25.75	156	8.79	1199	67.59		
58	2.63	2084	94.38	25.75 -	26.25	132	7.44	1331	75.03		
29	1.31	2113	95.70	26.25 -	26.75	117	6.60	1448	81.62		
31	1.40	2144	97.10	26.75 -	27.25	102	5.75	1550	87.37		
15	.68	2159	97.78	27.25 -	27.75	80	4.51	1630	91.88		
12	.54	2171	98.32	27.75 -	28.25	42	2.37	1672	94.25		
11	.50	2182	98.82	28.25 -	28.75	35	1.97	1707	96.22		
11	.50	2193	99.32	28.75 -	29.25	28	1.58	1735	97.80		
4	.18	2197	99.50	29.25 -	29.75	17	.96	1752	98.76		
5	.23	2202	99.73	29.75 -	30.25	11	.62	1763	99.38		
5	.23	2207	99.95	30.25 -	30.75	5	.28	1768	99.56		
0	.00	2207	99.95	30.75 -	31.25	0	.00	1768	99.66		
0	.00	2207	99.95	31.25 -	31.75	2	.11	1770	99.77		
0	.00	2207	99.95	31.75 -	32.25	1	.06	1771	99.83		
0	.00	2207	99.95	32.25 -	32.75	1	.06	1772	99.89		
0	.00	2207	99.95	32.75 -	33.25	0	.00	1772	99.89		
1	.05	2208	100.00	33.25 -	33.75	1	.06	1773	99.94		
				33.75 -	34.25	0	.00	1773	99.94		
				34.25 -	34.75	0	.00	1773	99.94		
				34.75 -	35.25	0	.00	1773	99.94		
				35.25 -	35.75	1	.06	1774	100.00		

## (25) BUTTOCK HEIGHT

The vertical distance between a standing surface and the level of the maximum protrusion of the right buttock is measured with an anthropometer at the right side of the thigh. The subject stands erect with the heels together and the weight distributed equally on both feet.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
73.89	29.09	1ST	78.43	30.88	
75.02	29.53	2ND	79.71	31.38	
75.73	29.81	3RD	80.48	31.68	
76.69	30.19	5TH	81.48	32.08	
78.18	30.78	10TH	82.98	32.67	
79.20	31.18	15TH	83.99	33.07	
80.01	31.50	20TH	84.79	33.38	
80.72	31.78	25TH	85.49	33.66	
81.36	32.03	30TH	86.13	33.91	
81.96	32.27	35TH	86.74	34.15	
82.54	32.50	40TH	87.32	34.38	
83.10	32.72	45TH	87.89	34.60	
83.66	32.94	50TH	88.47	34.83	
84.23	33.16	55TH	89.06	35.06	
84.81	33.39	60TH	89.66	35.30	
85.42	33.63	65TH	90.30	35.55	
86.07	33.88	70TH	90.99	35.82	
86.77	34.16	75TH	91.75	36.12	
87.57	34.48	80TH	92.61	36.46	
88.51	34.85	85TH	93.62	36.86	
89.71	35.32	90TH	94.93	37.37	
91.50	36.02	95TH	96.89	38.14	
92.67	36.48	97TH	98.15	38.64	
93.53	36.82	98TH	99.06	39.00	
94.86	37.35	99TH	100.46	39.55	

# BUTTOCK HEIGHT

## FEMALES

<u>CM</u>		<u>INCHES</u>
83.83	MEAN VALUE	33.01
.10	SE(MEAN)	.04
4.52	STD DEVIATION	1.78
.07	SE(STD DEV)	.03
65.30	MINIMUM	25.71
102.20	MAXIMUM	40.24

SYMMETRY---VETA I	=	.20
KURTOSIS---VETA II	=	3.24
COEF. OF VARIATION	=	5.4%
NUMBER OF SUBJECTS	=	2209

## MALES

<u>CM</u>		<u>INCHES</u>
88.74	MEAN VALUE	34.94
.11	SE(MEAN)	.04
4.71	STD DEVIATION	1.85
.08	SE(STD DEV)	.03
71.50	MINIMUM	28.15
111.40	MAXIMUM	43.86

SYMMETRY---VETA I	=	.31
KURTOSIS---VETA II	=	3.46
COEF. OF VARIATION	=	5.3%
NUMBER OF SUBJECTS	=	1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
1	.05	1	.05
0	.00	1	.05
0	.00	1	.05
0	.00	1	.05
1	.05	2	.09
0	.00	2	.09
3	.14	5	.23
4	.18	9	.41
10	.45	19	.86
16	.72	35	1.59
26	1.18	61	2.76
39	1.77	100	4.53
63	2.85	163	7.38
85	3.85	248	11.23
127	5.75	375	16.98
139	6.30	514	23.28
196	8.88	710	32.16
187	8.47	897	40.63
181	8.20	1078	48.82
199	9.01	1277	57.84
176	7.97	1453	65.81
170	7.70	1623	73.51
153	6.93	1776	80.43
101	4.57	1877	85.01
94	4.26	1971	89.27
71	3.22	2042	92.48
58	2.63	2100	95.11
43	1.95	2143	97.06
21	.95	2164	98.01
17	.77	2181	98.78
10	.45	2191	99.23
4	.18	2195	99.41
6	.27	2201	99.68
2	.09	2203	99.77
2	.09	2205	99.86
2	.09	2207	99.95
0	.00	2207	99.95
1	.05	2208	100.00

### CENTIMETERS

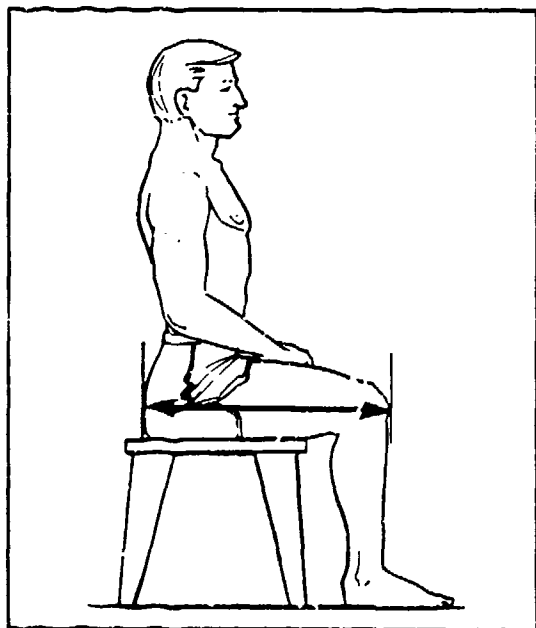
64.55 - 65.55
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109.55 - 110.55
110.55 - 111.55

### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
0	.00	1	.06
0	.00	1	.06
1	.06	2	.11
0	.00	2	.11
3	.17	5	.28
6	.34	11	.62
8	.45	19	1.07
14	.79	33	1.86
19	1.07	52	2.93
33	1.86	85	4.79
51	2.87	136	7.67
83	4.68	219	12.34
106	5.98	325	18.32
140	7.89	465	26.21
145	8.17	610	34.39
146	8.23	756	42.62
139	7.84	895	50.45
143	8.06	1038	58.51
144	8.12	1182	66.63
120	6.76	1302	73.39
101	5.69	1403	79.09
89	5.02	1492	84.10
84	4.74	1576	88.84
55	3.16	1632	92.00
51	2.87	1683	94.87
25	1.41	1708	96.28
20	1.13	1728	97.41
16	.90	1744	98.31
14	.79	1758	99.10
7	.39	1765	99.49
1	.06	1766	99.55
3	.17	1769	99.72
1	.06	1770	99.77
1	.06	1771	99.83
1	.06	1772	99.89
0	.00	1772	99.89
0	.00	1772	99.89
1	.06	1773	99.94
0	.00	1773	99.94
1	.06	1774	100.00

## (26) BUTTOCK-KNEE LENGTH

The horizontal distance between a buttock plate placed at the most posterior point on either buttock and the anterior point of the right knee is measured with an anthropometer. The subject sits erect. The thighs are parallel and the knees flexed 90 degrees with the feet in line with the thighs.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
52.13	20.54	1ST	55.07	21.68
53.03	20.88	2ND	55.81	21.97
53.54	21.08	3RD	56.28	22.16
54.21	21.34	5TH	56.90	22.40
55.20	21.73	10TH	57.87	22.78
55.87	22.00	15TH	58.54	23.05
56.39	22.20	20TH	59.08	23.26
56.85	22.38	25TH	59.55	23.45
57.27	22.55	30TH	59.98	23.62
57.66	22.70	35TH	60.39	23.77
58.04	22.85	40TH	60.78	23.93
58.41	23.00	45TH	61.16	24.08
58.78	23.14	50TH	61.54	24.23
59.15	23.29	55TH	61.93	24.38
59.54	23.44	60TH	62.32	24.54
59.95	23.60	65TH	62.73	24.70
60.38	23.77	70TH	63.17	24.87
60.85	23.96	75TH	63.65	25.06
61.39	24.17	80TH	64.19	25.27
62.01	24.41	85TH	64.81	25.52
62.81	24.73	90TH	65.60	25.83
63.98	25.19	95TH	66.74	26.28
64.72	25.48	97TH	67.45	26.56
65.24	25.69	98TH	67.95	26.75
66.02	25.99	99TH	68.69	27.04

# BUTTOCK-KNEE LENGTH

## FEMALES

<u>CM</u>		<u>INCHES</u>
58.89	MEAN VALUE	23.19
.06	SE(MEAN)	.02
2.96	STD DEVIATION	1.17
.04	SE(STD DEV)	.02
49.10	MINIMUM	19.33
69.10	MAXIMUM	27.20

SYMMETRY---VETA I = .15  
 KURTOSIS---VETA II = 2.99  
 COEF. OF VARIATION = 5.0%  
 NUMBER OF SUBJECTS = 2208

## MALES

<u>CM</u>		<u>INCHES</u>
61.64	MEAN VALUE	24.27
.07	SE(MEAN)	.03
2.99	STD DEVIATION	1.18
.05	SE(STD DEV)	.02
50.60	MINIMUM	19.92
72.30	MAXIMUM	28.46

SYMMETRY---VETA I = .14  
 KURTOSIS---VETA II = 2.97  
 COEF. OF VARIATION = 4.8%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

<u>F</u>	<u>FPct</u>	<u>CumF</u>	<u>CumFPct</u>
1	.05	1	.05
1	.05	2	.09
0	.00	2	.09
3	.14	5	.23
3	.14	8	.36
7	.32	15	.68
7	.32	22	1.00
14	.63	36	1.63
19	.86	55	2.49
27	1.22	82	3.71
28	1.27	110	4.98
49	2.22	159	7.20
65	2.94	224	10.14
83	3.76	307	13.90
112	5.07	419	18.98
93	4.21	512	23.19
133	6.02	645	29.21
141	6.39	786	35.60
145	6.57	931	42.16
184	8.33	1115	50.50
141	6.39	1256	56.88
139	6.30	1395	63.18
118	5.34	1513	68.52
130	5.89	1643	74.41
96	4.35	1739	78.76
88	3.99	1827	82.74
87	3.94	1914	86.68
64	2.90	1978	89.58
53	2.40	2031	91.98
46	2.08	2077	94.07
39	1.77	2116	95.83
27	1.22	2143	97.06
23	1.04	2166	98.10
15	.68	2181	98.78
9	.41	2190	99.18
8	.36	2198	99.55
2	.09	2200	99.64
3	.14	2203	99.77
4	.18	2207	99.95
0	.00	2207	99.95
1	.05	2208	100.00

### CENTIMETERS

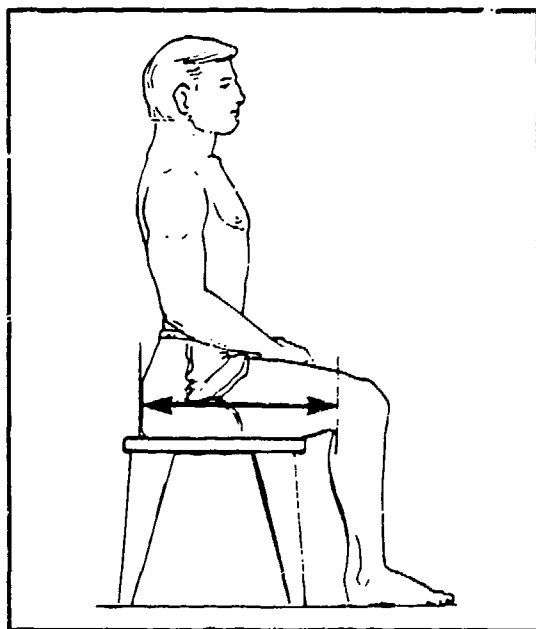
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72.25 - 72.75

### MALES

<u>F</u>	<u>FPct</u>	<u>CumF</u>	<u>CumFPct</u>
1	.06	1	.06
0	.00	1	.06
0	.00	1	.06
1	.06	2	.11
1	.06	3	.17
0	.00	3	.17
0	.00	3	.17
2	.11	5	.28
6	.34	11	.62
8	.45	19	1.07
15	.85	34	1.92
26	1.47	60	3.38
23	1.30	83	4.68
30	1.69	113	6.37
40	2.25	153	8.62
61	3.44	214	12.06
76	4.28	290	16.35
80	4.51	370	20.86
115	6.48	485	27.34
107	6.03	592	33.37
108	6.09	700	39.46
122	6.88	822	46.34
119	6.71	941	53.04
99	5.58	1040	58.62
116	6.54	1156	65.16
114	6.43	1270	71.59
94	5.30	1364	76.89
75	4.23	1439	81.12
64	3.61	1503	84.72
50	2.82	1553	87.54
50	2.82	1603	90.36
39	2.20	1642	92.56
42	2.37	1684	94.93
30	1.69	1714	96.62
15	.85	1729	97.46
19	1.07	1748	98.53
11	.62	1759	99.15
4	.23	1763	99.38
6	.34	1769	99.72
1	.06	1770	99.77
1	.06	1771	99.83
1	.06	1772	99.89
1	.06	1773	99.94
0	.00	1773	99.94
1	.06	1774	100.00

## (27) BUTTOCK-POPLITEAL LENGTH

The horizontal distance between a buttock plate placed at the most posterior point on either buttock and the back of the right knee (the popliteal fossa at the dorsal juncture of the calf and thigh) is measured with an anthropometer. The subject sits erect. The thighs are parallel and the knees flexed 90 degrees with the feet in line with the thighs.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
42.10	16.57	1ST	44.13	17.37
42.91	16.89	2ND	44.81	17.64
43.39	17.03	3RD	45.24	17.81
44.00	17.32	5TH	45.81	18.04
44.89	17.67	10TH	46.70	18.39
45.47	17.90	15TH	47.30	18.62
45.93	18.08	20TH	47.79	18.81
46.34	18.24	25TH	48.21	18.98
46.71	18.39	30TH	48.59	19.13
47.05	18.52	35TH	48.95	19.27
47.39	18.66	40TH	49.29	19.41
47.72	18.79	45TH	49.63	19.54
48.05	18.92	50TH	49.96	19.67
48.39	19.05	55TH	50.30	19.80
48.73	19.19	60TH	50.65	19.94
49.10	19.33	65TH	51.01	20.08
49.49	19.49	70TH	51.39	20.23
49.93	19.66	75TH	51.81	20.40
50.42	19.85	80TH	52.28	20.58
50.99	20.07	85TH	52.83	20.80
51.72	20.36	90TH	53.53	21.07
52.77	20.78	95TH	54.55	21.48
53.43	21.03	97TH	55.21	21.74
53.88	21.21	98TH	55.68	21.92
54.54	21.47	99TH	56.40	22.21

# BUTTCCK-POPLITEAL LENGTH

FEMALES			
CM		INCHES	
48.17	MEAN VALUE	18.96	
.06	SE (MEAN)	.02	
2.66	STD DEVIATION	1.05	
.04	SE (STD DEV)	.02	
39.40	MINIMUM	15.51	
57.80	MAXIMUM	22.76	
SYMMETRY---VETA I = .14			
KURTOSIS---VETA II = 2.96			
COEF. OF VARIATION = 5.5%			
NUMBER OF SUBJECTS = 2208			

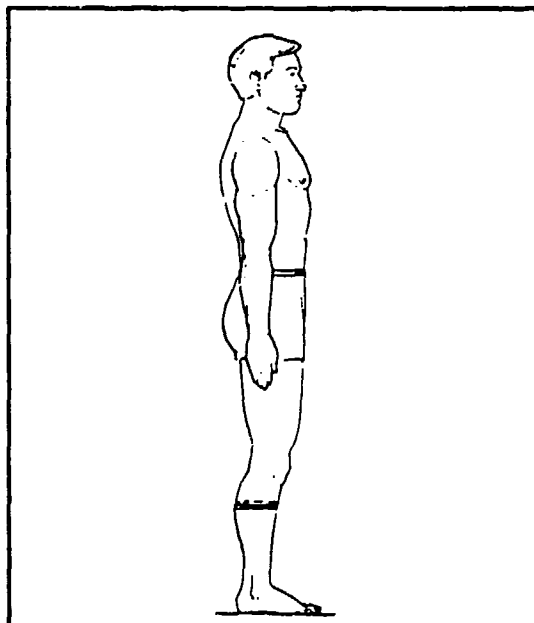
MALES			
CM		INCHES	
50.04	MEAN VALUE	19.70	
.06	SE (MEAN)	.02	
2.66	STD DEVIATION	1.05	
.04	SE (STD DEV)	.02	
40.10	MINIMUM	15.79	
59.70	MAXIMUM	23.50	
SYMMETRY---VETA I = .10			
KURTOSIS---VETA II = 3.07			
COEF. OF VARIATION = 5.3%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	39.25 -	39.75	1	.06	1	.06		
1	.05	2	.09	39.75 -	40.25	1	.06	2	.11		
3	.14	5	.23	40.25 -	40.75	0	.00	2	.11		
5	.23	10	.45	40.75 -	41.25	1	.06	3	.17		
4	.18	14	.63	41.25 -	41.75	1	.06	4	.23		
13	.59	27	1.22	41.75 -	42.25	0	.00	4	.23		
14	.63	41	1.86	42.25 -	42.75	2	.11	6	.34		
13	.59	54	2.45	42.75 -	43.25	4	.23	10	.56		
24	1.09	78	3.53	43.25 -	43.75	9	.51	19	1.07		
51	2.31	129	5.84	43.75 -	44.25	14	.79	33	1.86		
77	3.49	206	9.33	44.25 -	44.75	24	1.35	57	3.21		
96	4.35	302	13.68	44.75 -	45.25	27	1.52	84	4.74		
96	4.35	398	18.03	45.25 -	45.75	39	2.20	123	6.93		
134	6.07	532	24.09	45.75 -	46.25	70	3.95	193	10.88		
142	6.43	674	30.53	46.25 -	46.75	62	3.49	255	14.37		
158	7.16	832	37.68	46.75 -	47.25	80	4.51	335	18.88		
168	7.61	1000	45.29	47.25 -	47.75	112	6.31	447	25.20		
173	7.84	1173	53.13	47.75 -	48.25	118	6.65	565	31.85		
166	7.52	1339	60.64	48.25 -	48.75	123	6.93	688	38.78		
121	5.48	1460	66.12	48.75 -	49.25	137	7.72	825	46.51		
148	6.70	1608	72.83	49.25 -	49.75	138	7.78	963	54.28		
124	5.62	1732	78.44	49.75 -	50.25	135	7.61	1098	61.89		
112	5.07	1844	83.51	50.25 -	50.75	127	7.16	1225	69.05		
81	3.67	1925	87.18	50.75 -	51.25	107	6.03	1332	75.08		
68	3.08	1993	90.26	51.25 -	51.75	80	4.51	1412	79.59		
58	2.63	2051	92.89	51.75 -	52.25	84	4.74	1496	84.33		
43	1.95	2094	94.84	52.25 -	52.75	77	4.34	1573	88.67		
37	1.68	2131	96.51	52.75 -	53.25	44	2.48	1617	91.15		
30	1.36	2161	97.87	53.25 -	53.75	45	2.54	1662	93.69		
21	.95	2182	98.82	53.75 -	54.25	30	1.69	1692	95.38		
6	.27	2188	99.09	54.25 -	54.75	28	1.58	1720	96.96		
11	.50	2199	99.59	54.75 -	55.25	24	1.35	1744	98.31		
3	.14	2202	99.73	55.25 -	55.75	10	.56	1754	98.87		
4	.18	2206	99.91	55.75 -	56.25	9	.51	1763	99.38		
0	.00	2206	99.91	56.25 -	56.75	7	.39	1770	99.77		
1	.05	2207	99.95	56.75 -	57.25	1	.06	1771	99.83		
0	.00	2207	99.95	57.25 -	57.75	1	.06	1772	99.89		
1	.05	2208	100.00	57.75 -	58.25	0	.00	1772	99.89		
				58.25 -	58.75	0	.00	1772	99.89		
				58.75 -	59.25	2	.11	1774	100.00		
				59.25 -	59.75						



## (28) CALF CIRCUMFERENCE

The maximum horizontal circumference of the right calf is measured with a tape. The subject stands erect with the heels approximately 10 cm apart and the weight distributed equally on both feet.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
30.12	11.86	1ST	32.13	12.65
30.62	12.05	2ND	32.71	12.88
30.97	12.19	3RD	33.10	13.03
31.46	12.39	5TH	33.64	13.25
32.27	12.70	10TH	34.52	13.59
32.83	12.92	15TH	35.13	13.83
33.28	13.10	20TH	35.62	14.03
33.67	13.25	25TH	36.05	14.19
34.02	13.39	30TH	36.43	14.34
34.34	13.52	35TH	36.79	14.48
34.64	13.64	40TH	37.13	14.62
34.93	13.75	45TH	37.46	14.75
35.22	13.87	50TH	37.78	14.87
35.51	13.98	55TH	38.11	15.00
35.80	14.10	60TH	38.43	15.13
36.10	14.21	65TH	38.77	15.26
36.42	14.34	70TH	39.13	15.41
36.77	14.47	75TH	39.52	15.56
37.15	14.63	80TH	39.95	15.73
37.60	14.80	85TH	40.46	15.93
38.19	15.03	90TH	41.10	16.18
39.09	15.39	95TH	42.07	16.56
39.72	15.64	97TH	42.71	16.82
40.21	15.83	98TH	43.19	17.01
41.03	16.15	99TH	43.97	17.31

# CALF CIRCUMFERENCE

## FEMALES

CM		INCHES
35.24	MEAN VALUE	13.87
.05	SE (MEAN)	.02
2.32	STD DEVIATION	.91
.03	SE (STD DEV)	.00
28.50	MINIMUM	11.22
45.90	MAXIMUM	18.07

SYMMETRY---VETA I = .19  
 KURTOSIS---VETA II = 3.26  
 COEF. OF VARIATION = 6.6%  
 NUMBER OF SUBJECTS = 2208

## MALES

CM		INCHES
37.81	MEAN VALUE	14.88
.06	SE (MEAN)	.02
2.54	STD DEVIATION	1.00
.04	SE (STD DEV)	.02
30.40	MINIMUM	11.97
47.00	MAXIMUM	18.50

SYMMETRY---VETA I = .10  
 KURTOSIS---VETA II = 2.96  
 COEF. OF VARIATION = 6.7%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
1	.05	1	.05
4	.18	5	.23
6	.27	11	.50
14	.63	25	1.13
31	1.40	56	2.54
26	1.18	82	3.71
52	2.36	134	6.07
75	3.40	209	9.47
101	4.57	310	14.04
134	6.07	444	20.11
139	6.30	583	26.40
173	7.84	756	34.24
161	7.29	917	41.53
177	8.02	1094	49.55
205	9.28	1299	58.83
193	8.74	1492	67.57
155	7.02	1647	74.59
159	7.20	1806	81.79
111	5.03	1917	86.82
87	3.94	2004	90.76
56	2.54	2060	93.30
52	2.36	2112	95.65
31	1.40	2143	97.06
21	.95	2164	98.01
17	.77	2181	98.78
10	.45	2191	99.23
8	.36	2199	99.59
3	.14	2202	99.73
2	.09	2204	99.82
2	.09	2206	99.91
0	.00	2206	99.91
0	.00	2206	99.91
0	.00	2206	99.91
0	.00	2206	99.91
1	.05	2207	99.95
1	.05	2208	100.00

### CENTIMETERS

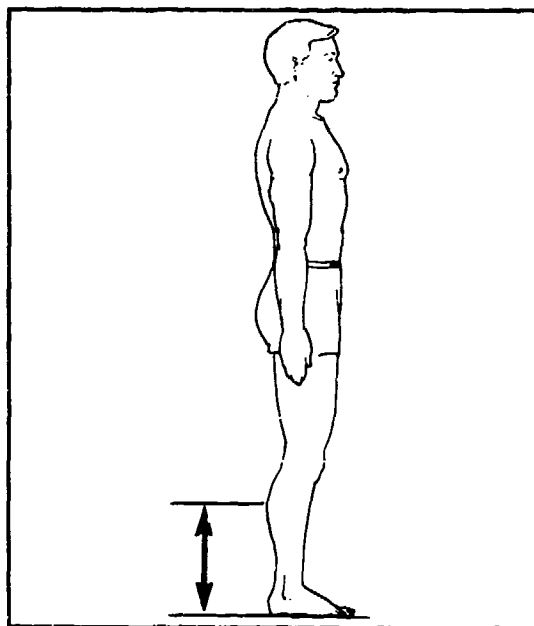
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46.75 - 47.25

### MALES

F	FPct	CumF	CumFPct
4	.23	4	.23
2	.11	6	.34
3	.17	9	.51
13	.73	22	1.24
13	.73	35	1.97
25	1.41	60	3.38
37	2.09	97	5.47
40	2.25	137	7.72
75	4.23	212	11.95
71	4.00	283	15.95
97	5.47	380	21.42
113	6.37	493	27.79
120	6.76	613	34.55
135	7.61	748	42.16
119	6.71	867	48.87
146	8.23	1013	57.10
135	7.61	1148	64.71
125	7.05	1273	71.76
101	5.69	1374	77.45
97	5.47	1471	82.92
87	4.90	1558	87.82
60	3.38	1618	91.21
50	2.82	1668	94.02
31	1.75	1699	95.77
22	1.24	1721	97.01
20	1.13	1741	98.14
13	.73	1754	98.87
5	.28	1759	99.15
9	.51	1768	99.66
3	.17	1771	99.83
0	.00	1771	99.83
1	.06	1772	99.89
1	.06	1773	99.94
1	.06	1774	100.00

## (29) CALF HEIGHT

The vertical distance between a standing surface and the level of the maximum circumference of the right calf is measured with an anthropometer. The subject stands erect with the heels together and the weight distributed equally on both feet.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
26.48	10.42	1ST	30.24	11.91
26.99	10.63	2ND	30.75	12.11
27.33	10.76	3RD	31.09	12.24
27.82	10.95	5TH	31.57	12.43
28.60	11.26	10TH	32.33	12.73
29.15	11.47	15TH	32.87	12.94
29.58	11.65	20TH	33.31	13.11
29.97	11.80	25TH	33.69	13.26
30.31	11.93	30TH	34.03	13.40
30.63	12.06	35TH	34.36	13.53
30.94	12.18	40TH	34.67	13.65
31.24	12.30	45TH	34.97	13.77
31.54	12.42	50TH	35.27	13.89
31.83	12.53	55TH	35.58	14.01
32.14	12.65	60TH	35.89	14.13
32.46	12.78	65TH	36.21	14.26
32.79	12.91	70TH	36.55	14.39
33.16	13.06	75TH	36.93	14.54
33.58	13.22	80TH	37.35	14.70
34.07	13.41	85TH	37.83	14.90
34.71	13.67	90TH	38.46	15.14
35.71	14.06	95TH	39.39	15.51
36.40	14.33	97TH	40.00	15.75
36.92	14.54	98TH	40.45	15.92
37.80	14.88	99TH	41.16	16.20

# CALF HEIGHT

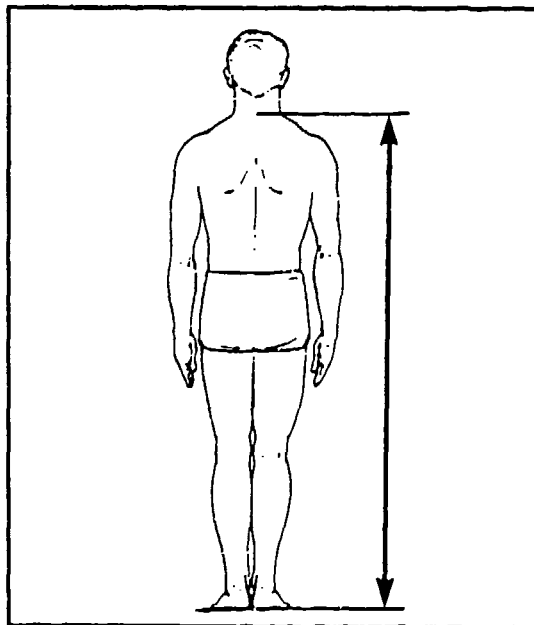
FEMALES			
CM		INCHES	
31.61	MEAN VALUE	12.45	
.05	SE(MEAN)	.02	
2.40	STD DEVIATION	.94	
.04	SE(STD DEV)	.00	
23.60	MINIMUM	9.29	
41.30	MAXIMUM	16.26	
SYMMETRY---VETA I = .26			
KURTOSIS---VETA II = 3.19			
COEF. OF VARIATION = 7.6%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
35.34	MEAN VALUE	13.91	
.06	SE(MEAN)	.02	
2.37	STD DEVIATION	.93	
.04	SE(STD DEV)	.02	
27.10	MINIMUM	10.67	
44.20	MAXIMUM	17.40	
SYMMETRY---VETA I = .19			
KURTOSIS---VETA II = 3.09			
COEF. OF VARIATION = 6.7%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	23.25	- 23.75						
0	.00	1	.05	23.75	- 24.25						
0	.00	1	.05	24.25	- 24.75						
2	.09	3	.14	24.75	- 25.25						
5	.23	8	.36	25.25	- 25.75						
6	.27	14	.63	25.75	- 26.25						
19	.86	33	1.49	26.25	- 26.75						
20	.91	53	2.40	26.75	- 27.25						
57	2.58	110	4.98	27.25	- 27.75	1	.06	1	.06		
55	2.49	165	7.47	27.75	- 28.25	1	.06	2	.11		
91	4.12	256	11.59	28.25	- 28.75	1	.06	3	.17		
94	4.26	350	15.85	28.75	- 29.25	0	.00	3	.17		
146	6.61	496	22.46	29.25	- 29.75	0	.00	3	.17		
129	5.84	625	28.31	29.75	- 30.25	4	.23	7	.39		
181	8.20	806	36.50	30.25	- 30.75	8	.45	15	.85		
180	8.15	986	44.66	30.75	- 31.25	24	1.35	39	2.20		
199	9.01	1185	53.67	31.25	- 31.75	27	1.52	66	3.72		
173	7.84	1358	61.50	31.75	- 32.25	33	1.86	99	5.58		
188	8.51	1546	70.02	32.25	- 32.75	60	3.38	159	8.96		
147	6.66	1693	76.68	32.75	- 33.25	77	4.34	236	13.30		
123	5.57	1816	82.25	33.25	- 33.75	93	5.24	329	18.55		
97	4.39	1913	86.64	33.75	- 34.25	132	7.44	461	25.99		
82	3.71	1995	90.35	34.25	- 34.75	133	7.50	594	33.48		
54	2.45	2049	92.80	34.75	- 35.25	143	8.06	737	41.54		
54	2.45	2103	95.24	35.25	- 35.75	151	8.51	888	50.06		
29	1.31	2132	96.56	35.75	- 36.25	136	7.67	1024	57.72		
23	1.04	2155	97.60	36.25	- 36.75	138	7.78	1162	65.50		
20	.91	2175	98.51	36.75	- 37.25	120	6.76	1282	72.27		
11	.50	2186	99.00	37.25	- 37.75	118	6.65	1400	78.92		
7	.32	2193	99.32	37.75	- 38.25	104	5.86	1504	84.78		
3	.14	2196	99.46	38.25	- 38.75	67	3.78	1571	88.56		
8	.36	2204	99.82	38.75	- 39.25	59	3.33	1630	91.88		
1	.05	2205	99.86	39.25	- 39.75	48	2.71	1678	94.59		
1	.05	2206	99.91	39.75	- 40.25	31	1.75	1709	96.34		
1	.05	2207	99.95	40.25	- 40.75	22	1.24	1731	97.58		
0	.00	2207	99.95	40.75	- 41.25	15	.85	1746	98.42		
1	.05	2208	100.00	41.25	- 41.75	14	.79	1760	99.21		
				41.75	- 42.25	6	.34	1766	99.55		
				42.25	- 42.75	0	.00	1766	99.55		
				42.75	- 43.25	3	.17	1769	99.72		
				43.25	- 43.75	2	.11	1771	99.83		
				43.75	- 44.25	2	.11	1773	99.94		
						1	.06	1774	100.00		

### (30) CERVICALE HEIGHT

The vertical distance between a standing surface and the cervicale landmark on the spine at the base of the neck is measured with an anthropometer. The subject stands erect with the head in the Frankfort plane. The heels are together with the weight distributed equally on both feet. The shoulders and upper extremities are relaxed. The measurement is taken at the maximum point of quiet respiration.



#### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
127.32	50.13	1ST	137.38	54.09
128.99	50.78	2ND	139.24	54.82
130.01	51.18	3RD	140.36	55.26
131.35	51.71	5TH	142.83	55.84
133.37	52.51	10TH	144.01	56.70
134.72	53.04	15TH	145.47	57.27
135.80	53.46	20TH	146.62	57.72
136.73	53.83	25TH	147.62	58.12
137.58	54.16	30TH	148.53	58.48
138.37	54.48	35TH	149.38	58.81
139.13	54.77	40TH	150.19	59.13
139.87	55.07	45TH	150.99	59.44
140.61	55.36	50TH	151.78	59.76
141.36	55.65	55TH	152.59	60.07
142.12	55.95	60TH	153.41	60.40
142.93	56.27	65TH	154.26	60.73
143.78	56.61	70TH	155.17	61.09
144.71	56.97	75TH	156.16	61.48
145.76	57.39	80TH	157.27	61.92
146.98	57.87	85TH	158.55	62.42
148.53	58.48	90TH	160.15	63.05
150.80	59.37	95TH	162.43	63.95
152.23	59.93	97TH	163.81	64.49
153.25	60.33	98TH	164.76	64.87
154.77	60.93	99TH	166.10	65.40

# CERVICALE HEIGHT

## FEMALES

<u>CM</u>		<u>INCHES</u>
140.80	MEAN VALUE	55.43
.13	SE(MEAN)	.05
5.92	STD DEVIATION	2.33
.09	SE(STD DEV)	.04
121.20	MINIMUM	47.72
164.30	MAXIMUM	64.69
SYMMETRY---VETA I	=	.14
KURTOSIS---VETA II	=	3.02
COEF. OF VARIATION	=	4.2%
NUMBER OF SUBJECTS	=	2208

## MALES

<u>CM</u>		<u>INCHES</u>
151.94	MEAN VALUE	59.82
.15	SE(MEAN)	.06
6.27	STD DEVIATION	2.47
.11	SE(STD DEV)	.04
126.70	MINIMUM	49.88
177.60	MAXIMUM	69.92
SYMMETRY---VETA I	=	.08
KURTOSIS---VETA II	=	3.16
COEF. OF VARIATION	=	4.1%
NUMBER OF SUBJECTS	=	1774

## FREQUENCY TABLE

### FEMALES

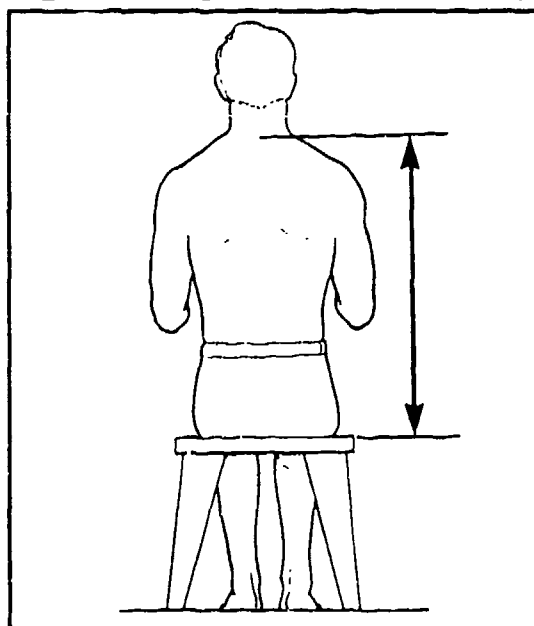
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>
1	.05	1	.05	120.75 - 122.25
1	.05	2	.09	122.25 - 123.75
5	.23	7	.32	123.75 - 125.25
10	.45	17	.77	125.25 - 126.75
18	.82	35	1.59	126.75 - 128.25
21	.95	56	2.54	128.25 - 129.75
43	1.95	99	4.48	129.75 - 131.25
85	3.85	184	8.33	131.25 - 132.75
99	4.48	283	12.82	132.75 - 134.25
149	6.75	432	19.57	134.25 - 135.75
198	8.97	630	28.53	135.75 - 137.25
216	9.78	846	38.32	137.25 - 138.75
205	9.28	1051	47.60	138.75 - 140.25
214	9.69	1265	57.29	140.25 - 141.75
211	9.56	1476	66.85	141.75 - 143.25
178	8.06	1654	74.91	143.25 - 144.75
165	7.47	1819	82.38	144.75 - 146.25
119	5.39	1938	87.77	146.25 - 147.75
82	3.71	2020	91.49	147.75 - 149.25
77	3.49	2097	94.97	149.25 - 150.75
47	2.13	2144	97.10	150.75 - 152.25
29	1.31	2173	98.41	152.25 - 153.75
15	.68	2188	99.09	153.75 - 155.25
9	.41	2197	99.50	155.25 - 156.75
5	.23	2202	99.73	156.75 - 158.25
3	.14	2205	99.86	158.25 - 159.75
2	.09	2207	99.95	159.75 - 161.25
0	.00	2207	99.95	161.25 - 162.75
0	.00	2207	99.95	162.75 - 164.25
1	.05	2208	100.00	164.25 - 165.75
				165.75 - 167.25
				167.25 - 168.75
				168.75 - 170.25
				170.25 - 171.75
				171.75 - 173.25
				173.25 - 174.75
				174.75 - 176.25
				176.25 - 177.75

### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
0	.00	1	.06
0	.00	1	.06
0	.00	1	.06
0	.00	1	.06
4	.23	5	.28
3	.17	8	.45
8	.45	16	.90
17	.96	33	1.86
17	.96	50	2.82
33	1.86	83	4.68
53	2.99	136	7.67
73	4.11	209	11.78
111	6.26	320	18.04
133	7.50	453	25.54
154	8.68	607	34.22
162	9.13	769	43.35
163	9.19	932	52.54
173	9.75	1105	62.29
136	7.67	1241	69.95
132	7.44	1373	77.40
103	5.81	1476	83.20
99	5.58	1575	88.78
81	4.57	1656	93.35
44	2.48	1700	95.83
33	1.86	1733	97.69
21	1.18	1754	98.87
5	.28	1759	99.15
7	.39	1766	99.55
3	.17	1769	99.72
2	.11	1771	99.83
1	.06	1772	99.89
0	.00	1772	99.89
0	.00	1772	99.89
2	.11	1774	100.00

### (31) CERVICALE HEIGHT, SITTING

The vertical distance between a sitting surface and the cervicale landmark on the spine at the base of the neck is measured with an anthropometer. The subject sits erect looking straight ahead. The shoulders and upper arms are relaxed and the forearms and hands are extended forward horizontally with the palms facing each other. The thighs are parallel and the knees are flexed 90 degrees. The measurement is taken at the maximum point of quiet respiration.



#### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
56.36	22.19	1ST	60.22	23.71	
57.06	22.46	2ND	61.15	24.07	
57.51	22.64	3RD	61.73	24.30	
58.12	22.88	5TH	62.51	24.61	
59.10	23.27	10TH	63.68	25.07	
59.78	23.54	15TH	64.46	25.38	
60.33	23.75	20TH	65.07	25.62	
60.82	23.94	25TH	65.60	25.83	
61.26	24.12	30TH	66.06	26.01	
61.67	24.28	35TH	66.49	26.18	
62.07	24.44	40TH	66.89	26.34	
62.46	24.59	45TH	67.28	26.49	
62.85	24.74	50TH	67.66	26.64	
63.24	24.90	55TH	68.05	26.79	
63.63	25.05	60TH	68.43	26.94	
64.05	25.22	65TH	68.83	27.10	
64.49	25.39	70TH	69.25	27.26	
64.96	25.58	75TH	69.70	27.44	
65.49	25.78	80TH	70.20	27.64	
66.10	26.02	85TH	70.78	27.87	
66.86	26.32	90TH	71.51	28.15	
67.95	26.75	95TH	72.58	28.58	
68.61	27.01	97TH	73.27	28.85	
69.08	27.20	98TH	73.77	29.04	
69.76	27.46	99TH	74.55	29.35	

# CERVICALE HEIGHT, SITTING

FEMALES			
CM		INCHES	
62.91	MEAN VALUE	24.77	
.06	SE(MEAN)	.02	
2.98	STD DEVIATION	1.17	
.04	SE(STD DEV)	.02	
53.60	MINIMUM	21.10	
74.10	MAXIMUM	29.17	
SYMMETRY---VETA I = .08			
KURTOSIS---VETA II = 2.81			
COEF. OF VARIATION = 4.7%			
NUMBER OF SUBJECTS = 2208			

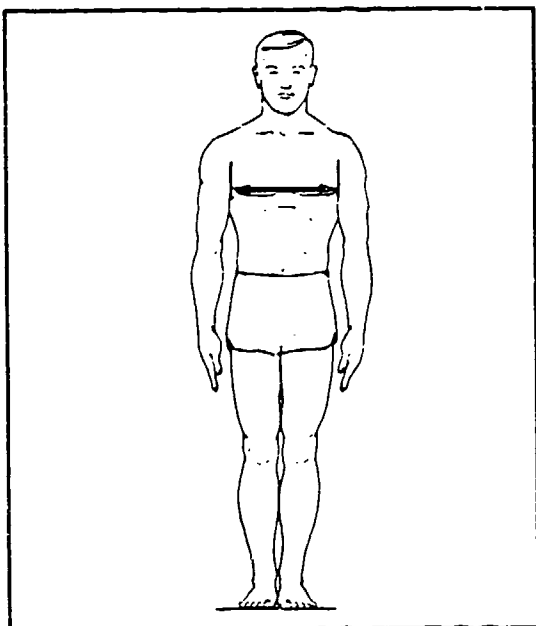
MALES			
CM		INCHES	
67.63	MEAN VALUE	26.62	
.07	SE(MEAN)	.03	
3.05	STD DEVIATION	1.20	
.05	SE(STD DEV)	.02	
58.00	MINIMUM	22.83	
77.50	MAXIMUM	30.51	
SYMMETRY---VETA I = -.07			
KURTOSIS---VETA II = 2.95			
COEF. OF VARIATION = 4.5%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	53.25	- 53.75						
1	.05	2	.09	53.75	- 54.25						
1	.05	3	.14	54.25	- 54.75						
5	.23	8	.36	54.75	- 55.25						
8	.36	16	.72	55.25	- 55.75						
3	.14	19	.86	55.75	- 56.25						
13	.59	32	1.45	56.25	- 56.75						
20	.91	52	2.36	56.75	- 57.25						
28	1.27	80	3.62	57.25	- 57.75						
42	1.90	122	5.53	57.75	- 58.25	2	.11	2	.11		
54	2.45	176	7.97	58.25	- 58.75	0	.00	2	.11		
59	2.67	235	10.64	58.75	- 59.25	2	.11	4	.23		
94	4.26	329	14.90	59.25	- 59.75	8	.45	12	.68		
105	4.76	434	19.66	59.75	- 60.25	5	.28	17	.96		
97	4.39	531	24.05	60.25	- 60.75	12	.68	29	1.63		
127	5.75	658	29.80	60.75	- 61.25	10	.56	39	2.20		
130	5.89	788	35.69	61.25	- 61.75	18	1.01	57	3.21		
152	6.88	940	42.57	61.75	- 62.25	14	.79	71	4.00		
137	6.20	1077	48.78	62.25	- 62.75	27	1.52	98	5.52		
133	6.02	1210	54.80	62.75	- 63.25	37	2.09	135	7.61		
141	6.39	1351	61.19	63.25	- 63.75	43	2.42	178	10.03		
133	6.02	1484	67.21	63.75	- 64.25	64	3.61	242	13.64		
135	6.11	1619	73.32	64.25	- 64.75	63	3.55	305	17.19		
100	4.53	1719	77.85	64.75	- 65.25	77	4.34	382	21.53		
98	4.44	1817	82.29	65.25	- 65.75	88	4.96	470	26.49		
91	4.12	1908	86.41	65.75	- 66.25	96	5.41	566	31.91		
72	3.26	1980	89.67	66.25	- 66.75	101	5.69	667	37.60		
59	2.67	2039	92.35	66.75	- 67.25	128	7.22	795	44.81		
45	2.04	2084	94.38	67.25	- 67.75	116	6.54	911	51.35		
33	1.49	2117	95.88	67.75	- 68.25	117	6.60	1028	57.95		
30	1.36	2147	97.24	68.25	- 68.75	117	6.60	1145	64.54		
23	1.04	2170	98.28	68.75	- 69.25	108	6.09	1253	70.63		
17	.77	2187	99.05	69.25	- 69.75	84	4.74	1337	75.37		
6	.27	2193	99.32	69.75	- 70.25	91	5.13	1428	80.50		
10	.45	2203	99.77	70.25	- 70.75	71	4.00	1499	84.50		
2	.09	2205	99.86	70.75	- 71.25	58	3.27	1557	87.77		
0	.00	2205	99.86	71.25	- 71.75	51	2.87	1608	90.64		
2	.09	2207	99.95	71.75	- 72.25	52	2.93	1660	93.57		
0	.00	2207	99.95	72.25	- 72.75	41	2.31	1701	95.89		
0	.00	2207	99.95	72.75	- 73.25	23	1.30	1724	97.18		
0	.00	2207	99.95	73.25	- 73.75	14	.79	1738	97.97		
1	.05	2208	100.00	73.75	- 74.25	13	.73	1751	98.70		
				74.25	- 74.75	8	.45	1759	99.15		
				74.75	- 75.25	4	.23	1763	99.38		
				75.25	- 75.75	8	.45	1771	99.83		
				75.75	- 76.25	1	.06	1772	99.89		
				76.25	- 76.75	0	.00	1772	99.89		
				76.75	- 77.25	0	.00	1772	99.89		
				77.25	- 77.75	2	.11	1774	100.00		



## (32) CHEST BREADTH

The maximum horizontal breadth of the chest at the level of the right busipoint on women or the nipple on men is measured with a beam caliper. The subject stands erect looking straight ahead with the heels together, the weight distributed equally on both feet. The measurement is taken at the maximum point of quiet respiration. Note: Breast tissue and latissimus dorsi muscle tissue are NOT included in this measurement if they extend beyond the rib cage.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
24.01	9.45	1ST	27.06	10.65	
24.43	9.62	2ND	27.55	10.85	
24.69	9.72	3RD	27.87	10.97	
25.04	9.86	5TH	28.31	11.15	
25.60	10.08	10TH	29.02	11.43	
25.99	10.23	15TH	29.53	11.63	
26.30	10.36	20TH	29.94	11.79	
26.58	10.47	25TH	30.32	11.94	
26.84	10.57	30TH	30.66	12.07	
27.08	10.66	35TH	30.99	12.20	
27.32	10.76	40TH	31.30	12.32	
27.55	10.85	45TH	31.62	12.45	
27.79	10.94	50TH	31.94	12.57	
28.03	11.04	55TH	32.26	12.70	
28.29	11.14	60TH	32.60	12.83	
28.56	11.24	65TH	32.95	12.97	
28.85	11.36	70TH	33.34	13.12	
29.17	11.48	75TH	33.76	13.29	
29.54	11.63	80TH	34.24	13.48	
29.99	11.81	85TH	34.81	13.71	
30.59	12.04	90TH	35.55	14.00	
31.51	12.41	95TH	36.67	14.44	
32.15	12.66	97TH	37.41	14.73	
32.63	12.85	98TH	37.95	14.94	
33.41	13.15	99TH	38.81	15.28	

# CHEST BREADTH

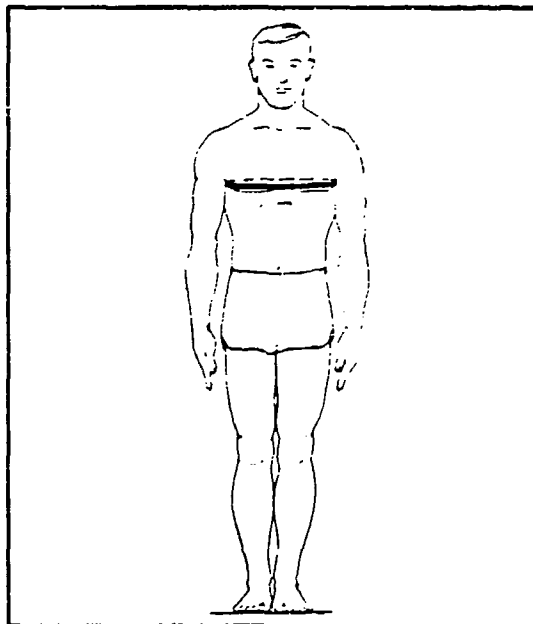
FEMALES			
<u>CM</u>		<u>INCHES</u>	
27.96	MEAN VALUE	11.01	
.04	SE(MEAN)	.02	
1.97	STD DEVIATION	.78	
.03	SE(STD DEV)	.00	
22.20	MINIMUM	8.74	
37.50	MAXIMUM	14.76	
SYMMETRY---VETA I = .56			
KURTOSIS---VETA II = 3.61			
COEF. OF VARIATION = 7.1%			
NUMBER OF SUBJECTS = 2208			

MALES			
<u>CM</u>		<u>INCHES</u>	
32.15	MEAN VALUE	12.66	
.06	SE(MEAN)	.02	
2.55	STD DEVIATION	1.01	
.04	SE(STD DEV)	.02	
25.70	MINIMUM	10.12	
42.20	MAXIMUM	16.61	
SYMMETRY---VETA I = .44			
KURTOSIS---VETA II = 3.16			
COEF. OF VARIATION = 7.9%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct	CumF	CumFPct		
1	.05	1	.05	21.75 -	22.25						
1	.05	2	.09	22.25 -	22.75						
1	.05	3	.14	22.75 -	23.25						
7	.32	10	.45	23.25 -	23.75						
23	1.04	33	1.49	23.75 -	24.25						
35	1.59	68	3.08	24.25 -	24.75						
78	3.53	146	6.61	24.75 -	25.25						
115	5.21	261	11.82	25.25 -	25.75						
147	6.66	408	18.48	25.75 -	26.25	2	.11	2	.11		
222	10.05	630	28.53	26.25 -	26.75	4	.23	6	.34		
214	9.69	844	38.22	26.75 -	27.25	4	.23	10	.56		
234	10.60	1078	48.82	27.25 -	27.75	15	.85	25	1.41		
228	10.33	1306	59.15	27.75 -	28.25	18	1.01	43	2.42		
219	9.92	1525	69.07	28.25 -	28.75	28	1.58	71	4.00		
155	7.02	1680	76.09	28.75 -	29.25	63	3.55	134	7.55		
148	6.70	1828	82.79	29.25 -	29.75	73	4.11	207	11.67		
107	4.85	1935	87.64	29.75 -	30.25	109	6.14	316	17.81		
83	3.76	2018	91.39	30.25 -	30.75	129	7.27	445	25.08		
61	2.76	2079	94.16	30.75 -	31.25	121	6.82	566	31.91		
38	1.72	2117	95.88	31.25 -	31.75	144	8.12	710	40.02		
28	1.27	2145	97.15	31.75 -	32.25	121	6.82	831	46.84		
22	1.00	2167	98.14	32.25 -	32.75	123	6.93	954	53.78		
17	.77	2184	98.91	32.75 -	33.25	144	8.12	1098	61.89		
8	.36	2192	99.28	33.25 -	33.75	108	6.09	1206	67.98		
7	.32	2199	99.59	33.75 -	34.25	125	7.05	1331	75.03		
4	.18	2203	99.77	34.25 -	34.75	95	5.36	1426	80.38		
1	.05	2204	99.82	34.75 -	35.25	73	4.11	1499	84.50		
1	.05	2205	99.86	35.25 -	35.75	59	3.33	1558	87.82		
2	.09	2207	99.95	35.75 -	36.25	57	3.21	1615	91.04		
0	.00	2207	99.95	36.25 -	36.75	44	2.48	1659	93.52		
0	.00	2207	99.95	36.75 -	37.25	36	2.03	1695	95.55		
1	.05	2208	100.00	37.25 -	37.75	22	1.24	1717	96.79		
				37.75 -	38.25	17	.96	1734	97.75		
				38.25 -	38.75	14	.79	1748	98.53		
				38.75 -	39.25	6	.34	1754	98.87		
				39.25 -	39.75	9	.51	1763	99.38		
				39.75 -	40.25	3	.17	1766	99.55		
				40.25 -	40.75	3	.17	1769	99.72		
				40.75 -	41.25	1	.06	1770	99.77		
				41.25 -	41.75	1	.06	1771	99.83		
				41.75 -	42.25	0	.00	1771	99.83		
						3	.17	1774	100.00		

### (33) CHEST CIRCUMFERENCE

The maximum horizontal circumference of the chest at the fullest part of the breast is measured with a tape. The subject stands erect looking straight ahead. The shoulders and upper extremities are relaxed. The measurement is taken at the maximum point of quiet respiration.



#### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
78.14	30.76	1ST	84.50	33.27	
79.49	31.29	2ND	86.16	33.92	
80.31	31.62	3RD	87.18	34.32	
81.41	32.05	5TH	88.55	34.86	
83.12	32.72	10TH	90.66	35.69	
84.31	33.19	15TH	92.10	36.26	
85.29	33.58	20TH	93.27	36.72	
86.18	33.93	25TH	94.29	37.12	
86.99	34.25	30TH	95.23	37.49	
87.78	34.56	35TH	96.12	37.84	
88.55	34.86	40TH	96.98	38.18	
89.31	35.16	45TH	97.63	38.52	
90.09	35.47	50TH	98.69	38.85	
90.90	35.79	55TH	99.56	39.20	
91.74	36.12	60TH	100.46	39.55	
92.63	36.47	65TH	101.41	39.93	
93.60	36.85	70TH	102.43	40.33	
94.68	37.28	75TH	103.56	40.77	
95.92	37.77	80TH	104.85	41.28	
97.40	38.35	85TH	106.36	41.88	
99.32	39.10	90TH	108.33	42.65	
102.24	40.25	95TH	111.28	43.81	
104.14	41.00	97TH	112.21	44.57	
105.54	41.55	98TH	114.63	45.13	
107.69	42.40	99TH	116.82	45.99	

# CHEST CIRCUMFERENCE

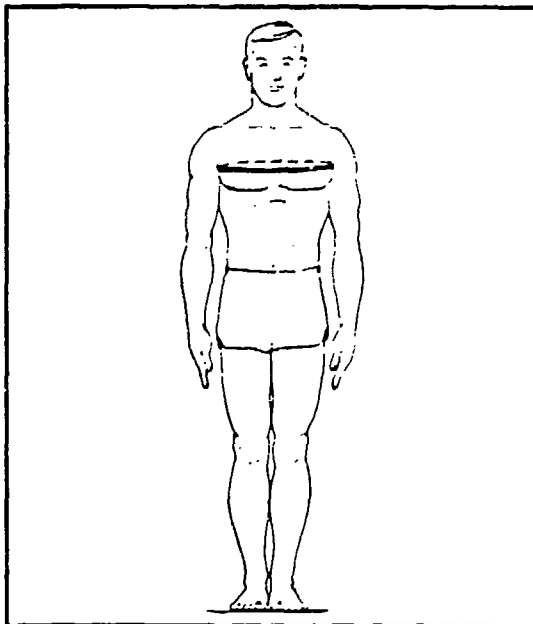
FEMALES			
CM		INCHES	
90.71	MEAN VALUE	35.71	
.14	SE (MEAN)	.05	
6.35	STD DEVIATION	2.50	
.10	SE (STD DEV)	.04	
71.10	MINIMUM	27.99	
117.60	MAXIMUM	46.30	
SYMMETRY---VETA I = .50			
KURTOSIS---VETA II = 3.32			
COEF. OF VARIATION = 7.0%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
99.14	MEAN VALUE	39.03	
.16	SE (MEAN)	.06	
6.90	STD DEVIATION	2.72	
.12	SE (STD DEV)	.05	
77.50	MINIMUM	30.51	
128.10	MAXIMUM	50.43	
SYMMETRY---VETA I = .36			
KURTOSIS---VETA II = 3.28			
COEF. OF VARIATION = 7.0%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	70.75 - 72.25		1	.06	1	.06		
0	.00	1	.05	72.25 - 73.75		1	.06	2	.11		
5	.23	6	.27	73.75 - 75.25		1	.06	3	.17		
4	.18	10	.45	75.25 - 76.75		3	.17	6	.34		
9	.41	19	.86	76.75 - 78.25		7	.39	13	.73		
33	1.49	52	2.36	78.25 - 79.75		18	1.01	31	1.75		
50	2.26	102	4.62	79.75 - 81.25		21	1.18	52	2.93		
84	3.80	186	8.42	81.25 - 82.75		42	2.37	94	5.30		
150	6.79	336	15.22	82.75 - 84.25		58	3.27	152	8.57		
162	7.34	498	22.55	84.25 - 85.75		89	5.02	241	13.59		
175	7.97	674	30.53	85.75 - 87.25		114	6.43	355	20.01		
227	10.28	901	40.81	87.25 - 88.75		129	7.27	484	27.28		
232	10.51	1133	51.31	88.75 - 90.25		144	8.12	628	35.40		
206	9.33	1339	60.64	90.25 - 91.75		169	9.53	797	44.93		
178	8.06	1517	68.70	91.75 - 93.25		148	8.34	945	53.27		
135	6.11	1652	74.82	93.25 - 94.75		155	8.74	1100	62.01		
149	6.75	1801	81.57	94.75 - 96.25		123	6.93	1223	68.94		
99	4.48	1900	86.05	96.25 - 97.75		121	6.82	1344	75.76		
82	3.71	1982	89.76	97.75 - 99.25		106	5.98	1450	81.74		
75	3.40	2057	93.16	99.25 - 100.75		86	4.85	1536	86.58		
42	1.90	2099	95.06	100.75 - 102.25		63	3.55	1599	90.14		
37	1.68	2136	96.74	102.25 - 103.75		51	2.87	1650	93.01		
24	1.09	2160	97.83	103.75 - 105.25		32	1.80	1682	94.81		
18	.82	2178	98.64	105.25 - 106.75		31	1.75	1713	96.56		
14	.63	2192	99.28	106.75 - 108.25		19	1.07	1732	97.63		
7	.32	2199	99.59	108.25 - 109.75		21	1.18	1753	98.82		
3	.14	2202	99.73	109.75 - 111.25		8	.45	1761	99.27		
0	.00	2202	99.73	111.25 - 112.75		4	.23	1765	99.49		
3	.14	2205	99.86	112.75 - 114.25		4	.23	1769	99.72		
1	.05	2206	99.91	114.25 - 115.75		1	.06	1770	99.77		
1	.05	2207	99.95	115.75 - 117.25		1	.06	1771	99.83		
1	.05	2208	100.00	117.25 - 118.75		0	.00	1771	99.83		
				118.75 - 120.25		0	.00	1771	99.83		
				120.25 - 121.75		2	.11	1773	99.94		
				121.75 - 123.25		1	.06	1774	100.00		
				123.25 - 124.75							
				124.75 - 126.25							
				126.25 - 127.75							
				127.75 - 129.25							

### (34) CHEST CIRCUMFERENCE AT SCYE

The horizontal circumference of the chest at the level of the scye-at-midspine landmark is measured with a tape. The subject stands erect looking straight ahead. The shoulders and upper extremities are relaxed. The measurement is taken at the maximum point of quiet respiration.



#### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
77.61	30.55	1ST	88.54	34.86	
78.97	31.09	2ND	89.93	35.40	
79.78	31.41	3RD	90.83	35.76	
80.82	31.82	5TH	92.09	36.26	
82.38	32.43	10TH	94.12	37.05	
83.43	32.84	15TH	95.54	37.61	
84.26	33.17	20TH	96.69	38.07	
85.00	33.47	25TH	97.72	38.47	
85.68	33.73	30TH	98.65	38.84	
86.33	33.99	35TH	99.52	39.18	
86.96	34.24	40TH	100.37	39.51	
87.58	34.48	45TH	101.19	39.84	
88.22	34.73	50TH	102.02	40.17	
88.88	34.99	55TH	102.86	40.50	
89.56	35.26	60TH	103.71	40.83	
90.29	35.55	65TH	104.61	41.18	
91.08	35.86	70TH	105.56	41.56	
91.96	36.20	75TH	106.60	41.97	
92.98	36.61	80TH	107.77	42.43	
94.20	37.09	85TH	109.13	42.96	
95.80	37.72	90TH	110.86	43.64	
98.28	38.69	95TH	113.42	44.65	
99.93	39.34	97TH	115.06	45.30	
101.16	39.83	98TH	116.25	45.77	
103.09	40.59	99TH	118.09	46.49	

# CHEST CIRCUMFERENCE AT SCYE

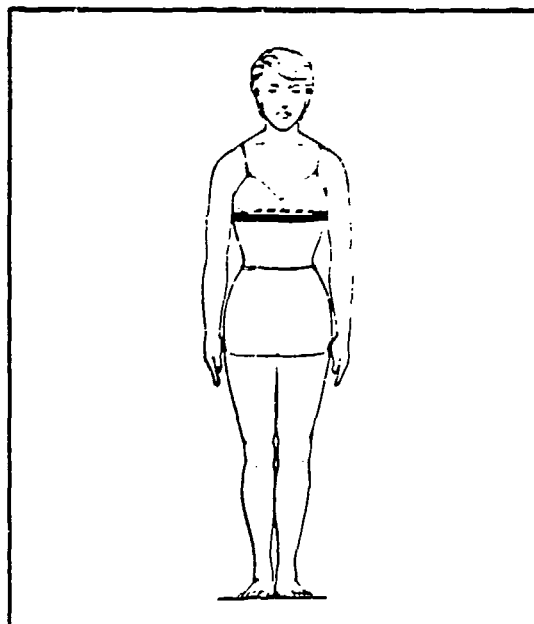
FEMALES			
CM		INCHES	
88.70	MEAN VALUE	34.92	
.11	SE(MEAN)	.04	
5.32	STD DEVIATION	2.10	
.08	SE(STD DEV)	.03	
75.30	MINIMUM	29.65	
112.10	MAXIMUM	44.13	
SYMMETRY---VETA I		=	.51
KURTOSIS---VETA II		=	3.51
COEF. OF VARIATION		=	6.0%
NUMBER OF SUBJECTS		=	2208

MALES			
CM		INCHES	
102.32	MEAN VALUE	40.28	
.16	SE(MEAN)	.06	
6.53	STD DEVIATION	2.57	
.11	SE(STD DEV)	.04	
80.70	MINIMUM	31.77	
129.80	MAXIMUM	51.10	
SYMMETRY---VETA I		=	.27
KURTOSIS---VETA II		=	3.25
COEF. OF VARIATION		=	6.4%
NUMBER OF SUBJECTS		=	1774

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
2	.09	2	.09	74.55	- 75.55						
7	.32	9	.41	75.55	- 76.55						
12	.54	21	.95	76.55	- 77.55						
17	.77	38	1.72	77.55	- 78.55						
22	1.00	60	2.72	78.55	- 79.55						
42	1.90	102	4.62	79.55	- 80.55						
54	2.45	156	7.07	80.55	- 81.55	1	.06	1	.06		
86	3.89	242	10.96	81.55	- 82.55	0	.00	1	.06		
114	5.16	356	16.12	82.55	- 83.55	0	.00	1	.06		
123	5.57	479	21.69	83.55	- 84.55	1	.06	2	.11		
145	6.57	624	28.26	84.55	- 85.55	3	.17	5	.28		
185	8.38	809	36.64	85.55	- 86.55	5	.28	10	.56		
168	7.61	977	44.25	86.55	- 87.55	2	.11	12	.68		
202	9.15	1179	53.40	87.55	- 88.55	6	.34	18	1.01		
160	7.25	1339	60.64	88.55	- 89.55	9	.51	27	1.52		
152	6.88	1491	67.53	89.55	- 90.55	21	1.18	48	2.71		
119	5.39	1610	72.92	90.55	- 91.55	22	1.24	70	3.95		
110	4.98	1720	77.90	91.55	- 92.55	33	1.86	103	5.81		
102	4.62	1822	82.52	92.55	- 93.55	42	2.37	145	8.17		
92	4.17	1914	86.68	93.55	- 94.55	56	3.16	201	11.33		
66	2.99	1980	89.67	94.55	- 95.55	73	4.11	274	15.45		
42	1.90	2022	91.58	95.55	- 96.55	65	3.66	339	19.11		
50	2.26	2072	93.84	96.55	- 97.55	94	5.30	433	24.41		
43	1.95	2115	95.79	97.55	- 98.55	85	4.79	518	29.20		
17	.77	2132	96.56	98.55	- 99.55	113	6.37	631	35.57		
21	.95	2153	97.51	99.55	- 100.55	99	5.58	730	41.15		
16	.72	2169	98.23	100.55	- 101.55	101	5.69	831	46.84		
14	.63	2183	98.87	101.55	- 102.55	103	5.81	934	52.65		
9	.41	2192	99.28	102.55	- 103.55	110	6.20	1044	58.85		
3	.14	2195	99.41	103.55	- 104.55	95	5.36	1139	64.21		
3	.14	2198	99.55	104.55	- 105.55	110	6.20	1249	70.41		
5	.23	2203	99.77	105.55	- 106.55	87	4.90	1336	75.31		
1	.05	2204	99.82	106.55	- 107.55	84	4.74	1420	80.05		
0	.00	2204	99.82	107.55	- 108.55	58	3.27	1476	83.31		
1	.05	2205	99.86	108.55	- 109.55	59	3.33	1537	86.64		
1	.05	2206	99.91	109.55	- 110.55	50	2.82	1587	89.46		
1	.05	2207	99.95	110.55	- 111.55	32	1.80	1619	91.26		
1	.05	2208	100.00	111.55	- 112.55	33	1.86	1652	93.12		
				112.55	- 113.55	33	1.86	1685	94.98		
				113.55	- 114.55	25	1.41	1710	96.39		
				114.55	- 115.55	21	1.18	1731	97.58		
				115.55	- 116.55	15	.85	1746	98.42		
				116.55	- 117.55	8	.45	1754	98.87		
				117.55	- 118.55	5	.28	1759	99.15		
				118.55	- 119.55	3	.17	1762	99.32		
				119.55	- 120.55	3	.17	1765	99.49		
				120.55	- 121.55	2	.11	1767	99.61		
				121.55	- 122.55	1	.06	1768	99.66		
				122.55	- 123.55	2	.11	1770	99.77		
				123.55	- 124.55	0	.00	1770	99.77		
				124.55	- 125.55	0	.00	1770	99.77		
				125.55	- 126.55	0	.00	1770	99.77		
				126.55	- 127.55	2	.11	1772	99.89		
				127.55	- 128.55	0	.00	1772	99.89		
				128.55	- 129.55	1	.06	1773	99.94		
				129.55	- 130.55	1	.06	1774	100.00		

## (35) CHEST CIRCUMFERENCE BELOW BREAST

The horizontal circumference of the chest at the level of the inferior juncture of the lowest breast with the rib cage is measured with a tape. On women, the tape may lie on the bra. The subject stands erect looking straight ahead. The shoulders and upper extremities are relaxed. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
67.09	26.41	1ST	78.91	31.07	
68.10	26.81	2ND	80.42	31.66	
68.74	27.06	3RD	81.36	32.03	
69.60	27.40	5TH	82.63	32.53	
70.95	27.93	10TH	84.59	33.30	
71.90	28.31	15TH	85.95	33.84	
72.67	28.61	20TH	87.05	34.27	
73.37	28.88	25TH	88.02	34.65	
74.01	29.14	30TH	88.91	35.00	
74.62	29.38	35TH	89.75	35.33	
75.22	29.61	40TH	90.56	35.65	
75.82	29.85	45TH	91.36	35.97	
76.43	30.09	50TH	92.17	36.29	
77.06	30.34	55TH	93.00	36.61	
77.72	30.60	60TH	93.85	36.95	
78.42	30.87	65TH	94.75	37.30	
79.18	31.17	70TH	95.72	37.68	
80.03	31.51	75TH	96.78	38.10	
81.02	31.90	80TH	98.00	38.58	
82.21	32.37	85TH	99.44	39.15	
83.79	32.99	90TH	101.29	39.88	
86.27	33.96	95TH	104.10	40.98	
87.96	34.63	97TH	105.93	41.71	
89.25	35.14	98TH	107.28	42.24	
91.33	35.96	99TH	109.38	43.06	

# CHEST CIRCUMFERENCE BELOW BREAST

FEMALES			
<u>CM</u>		<u>INCHES</u>	
76.97	MEAN VALUE	30.30	
.11	SE(MEAN)	.04	
5.10	STD DEVIATION	2.01	
.08	SE(STD DEV)	.03	
64.00	MINIMUM	25.20	
98.80	MAXIMUM	38.90	
SYMMETRY---VETA I = .62			
KURTOSIS---VETA II = 3.61			
COEF. OF VARIATION = 6.6%			
NUMBER OF SUBJECTS = 2208			

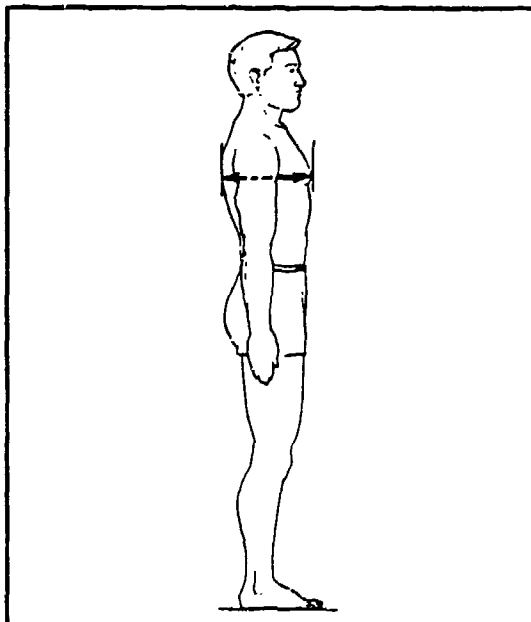
MALES			
<u>CM</u>		<u>INCHES</u>	
92.61	MEAN VALUE	36.46	
.16	SE(MEAN)	.06	
6.54	STD DEVIATION	2.58	
.11	SE(STD DEV)	.04	
72.30	MINIMUM	28.46	
121.10	MAXIMUM	47.68	
SYMMETRY---VETA I = .36			
KURTOSIS---VETA II = 3.26			
COEF. OF VARIATION = 7.1%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
<u>F</u>	<u>FPct</u>	<u>CumF</u>	<u>CumFPct</u>	<u>CENTIMETERS</u>		<u>F</u>	<u>FPct</u>	<u>CumF</u>	<u>CumFPct</u>		
4	.18	4	.18	63.75	- 65.25						
9	.41	13	.59	65.25	- 66.75						
38	1.72	51	2.31	66.75	- 68.25						
69	3.13	120	5.43	68.25	- 69.75						
130	5.89	250	11.32	69.75	- 71.25						
179	8.11	429	19.43	71.25	- 72.75	1	.06	1	.06		
280	12.68	709	32.11	72.75	- 74.25	0	.00	1	.06		
289	13.09	998	45.20	74.25	- 75.75	3	.17	4	.23		
255	11.55	1253	56.75	75.75	- 77.25	5	.28	9	.51		
229	10.37	1482	67.12	77.25	- 78.75	6	.34	15	.85		
188	8.51	1670	75.63	78.75	- 80.25	20	1.13	35	1.97		
169	7.65	1839	83.29	80.25	- 81.75	31	1.75	66	3.72		
114	5.16	1953	88.45	81.75	- 83.25	39	2.20	105	5.92		
90	4.08	2043	92.53	83.25	- 84.75	92	5.19	197	11.10		
56	2.54	2099	95.06	84.75	- 86.25	99	5.58	296	16.69		
35	1.59	2134	96.65	86.25	- 87.75	116	6.54	412	23.22		
33	1.49	2167	98.14	87.75	- 89.25	149	8.40	561	31.62		
13	.59	2180	98.73	89.25	- 90.75	167	9.41	728	41.04		
16	.72	2196	99.46	90.75	- 92.25	176	9.92	904	50.96		
5	.23	2201	99.68	92.25	- 93.75	147	8.29	1051	59.24		
2	.09	2203	99.77	93.75	- 95.25	152	8.57	1203	67.81		
0	.00	2203	99.77	95.25	- 96.75	126	7.10	1329	74.92		
2	.09	2205	99.86	96.75	- 98.25	100	5.64	1429	80.55		
3	.14	2208	100.00	98.25	- 99.75	101	5.69	1530	86.25		
				99.75	- 101.25	73	4.11	1603	90.36		
				101.25	- 102.75	48	2.71	1651	93.07		
				102.75	- 104.25	37	2.09	1688	95.15		
				104.25	- 105.75	30	1.69	1718	96.84		
				105.75	- 107.25	24	1.35	1742	98.20		
				107.25	- 108.75	13	.73	1755	98.93		
				108.75	- 110.25	5	.28	1760	99.21		
				110.25	- 111.75	8	.45	1768	99.66		
				111.75	- 113.25	2	.11	1770	99.77		
				113.25	- 114.75	0	.00	1770	99.77		
				114.75	- 116.25	1	.06	1771	99.83		
				116.25	- 117.75	0	.00	1771	99.83		
				117.75	- 119.25	2	.11	1773	99.94		
				119.25	- 120.75	0	.00	1773	99.94		
				120.75	- 122.25	1	.06	1774	100.00		



## (36) CHEST DEPTH

The horizontal distance between the chest, at the level of the right bustpoint on women or the nipple on men, and the back at the same level is measured with a beam caliper. The subject stands erect looking straight ahead. The shoulders and upper extremities are relaxed. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
19.71	7.76	1ST	19.67	7.74
20.20	7.95	2ND	20.20	7.95
20.48	8.06	3RD	20.52	8.08
20.86	8.21	5TH	20.96	8.25
21.43	8.44	10TH	21.64	8.52
21.83	8.59	15TH	22.11	8.71
22.15	8.72	20TH	22.49	8.85
22.44	8.84	25TH	22.82	8.98
22.71	8.94	30TH	23.12	9.10
22.97	9.04	35TH	23.40	9.21
23.22	9.14	40TH	23.68	9.32
23.48	9.24	45TH	23.95	9.43
23.74	9.35	50TH	24.22	9.53
24.00	9.45	55TH	24.49	9.64
24.28	9.56	60TH	24.78	9.75
24.58	9.68	65TH	25.07	9.87
24.90	9.80	70TH	25.39	10.00
25.26	9.95	75TH	25.73	10.13
25.68	10.11	80TH	26.13	10.29
26.17	10.30	85TH	26.59	10.47
26.81	10.56	90TH	27.17	10.70
27.78	10.94	95TH	28.04	11.04
28.41	11.18	97TH	28.59	11.26
28.86	11.36	98TH	28.99	11.41
29.54	11.63	99TH	29.60	11.65

# CHEST DEPTH

## FEMALES

CM		INCHES
23.94	MEAN VALUE	9.43
.04	SE(MEAN)	.02
2.11	STD DEVIATION	.83
.03	SE(STD DEV)	.00
17.00	MINIMUM	6.69
32.50	MAXIMUM	12.80

SYMMETRY---VETA I	=	.44
KURTOSIS---VETA II	=	3.24
COEF. OF VARIATION	=	8.8%
NUMBER OF SUBJECTS	=	2208

## MALES

CM		INCHES
24.32	MEAN VALUE	9.58
.05	SE(MEAN)	.02
2.15	STD DEVIATION	.85
.04	SE(STD DEV)	.00
18.50	MINIMUM	7.28
32.20	MAXIMUM	12.68

SYMMETRY---VETA I	=	.26
KURTOSIS---VETA II	=	3.07
COEF. OF VARIATION	=	8.8%
NUMBER OF SUBJECTS	=	1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
1	.05	1	.05
1	.05	2	.09
1	.05	3	.14
2	.09	5	.23
6	.27	11	.50
13	.59	24	1.09
19	.86	43	1.95
46	2.08	89	4.03
106	4.80	195	8.83
123	5.57	318	14.40
153	6.93	471	21.33
201	9.10	672	30.43
203	9.19	875	39.63
229	10.37	1104	50.00
212	9.60	1316	59.60
184	8.33	1500	67.93
164	7.43	1664	75.36
123	5.57	1787	80.93
111	5.03	1898	85.96
81	3.67	1979	89.63
82	3.71	2061	93.34
36	1.63	2097	94.97
32	1.45	2129	96.42
28	1.27	2157	97.69
24	1.09	2181	98.78
10	.45	2191	99.23
8	.36	2199	99.59
6	.27	2205	99.86
0	.00	2205	99.86
1	.05	2206	99.91
1	.05	2207	99.95
1	.05	2208	100.00

### CENTIMETERS

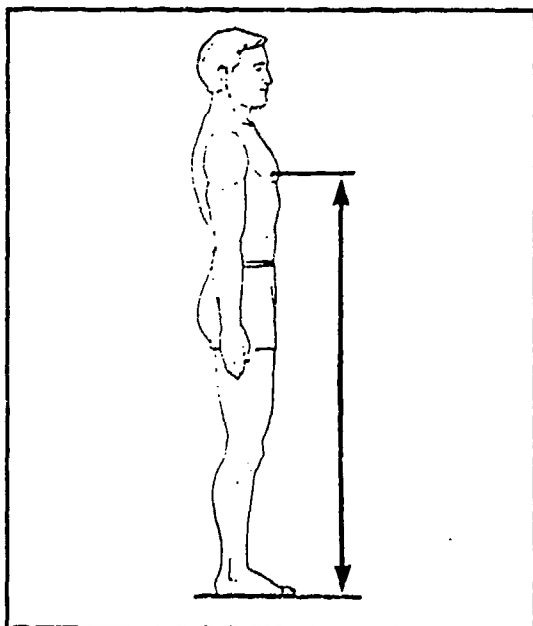
16.75 -	17.25
17.25 -	17.75
17.75 -	18.25
18.25 -	18.75
18.75 -	19.25
19.25 -	19.75
19.75 -	20.25
20.25 -	20.75
20.75 -	21.25
21.25 -	21.75
21.75 -	22.25
22.25 -	22.75
22.75 -	23.25
23.25 -	23.75
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27.75 -	28.25
28.25 -	28.75
28.75 -	29.25
29.25 -	29.75
29.75 -	30.25
30.25 -	30.75
30.75 -	31.25
31.25 -	31.75
31.75 -	32.25
32.25 -	32.75

### MALES

F	FPct	CumF	CumFPct
2	.11	2	.11
5	.28	7	.39
12	.68	19	1.07
19	1.07	38	2.14
36	2.03	74	4.17
42	2.37	116	6.54
83	4.68	199	11.22
108	6.09	307	17.31
120	6.76	427	24.07
129	7.27	556	31.34
169	9.53	725	40.87
168	9.47	893	50.34
161	9.08	1054	59.41
153	8.62	1207	68.04
133	7.50	1340	75.54
119	6.71	1459	82.24
83	4.68	1542	86.92
76	4.28	1618	91.21
45	2.54	1663	93.74
34	1.92	1697	95.66
31	1.75	1728	97.41
16	.90	1744	98.31
19	1.07	1763	99.38
4	.23	1767	99.61
0	.00	1767	99.61
2	.11	1769	99.72
2	.11	1771	99.83
3	.17	1774	100.00

## (37) CHEST HEIGHT

The vertical distance between a standing surface and the right bustpoint on women or the nipple on men is measured with an anthropometer. The subject stands erect looking straight ahead. The heels are together with the weight distributed equally on both feet. The shoulders and upper extremities are relaxed. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
105.13	41.39	1ST	114.72	45.17
106.70	42.01	2ND	116.34	45.80
107.64	42.38	3RD	117.32	46.19
108.85	42.86	5TH	118.61	46.70
110.66	43.56	10TH	120.54	47.46
111.86	44.04	15TH	121.84	47.97
112.81	44.42	20TH	122.86	48.37
113.65	44.75	25TH	123.76	48.72
114.42	45.05	30TH	124.57	49.04
115.13	45.33	35TH	125.32	49.34
115.83	45.60	40TH	126.04	49.62
116.51	45.87	45TH	126.75	49.90
117.20	46.14	50TH	127.46	50.18
117.90	46.42	55TH	128.17	50.46
118.61	46.70	60TH	128.90	50.75
119.37	47.00	65TH	129.66	51.05
120.18	47.31	70TH	130.46	51.36
121.07	47.66	75TH	131.34	51.71
122.07	48.06	80TH	132.33	52.10
123.24	48.52	85TH	133.47	52.55
124.73	49.10	90TH	134.91	53.11
126.89	49.96	95TH	136.98	53.93
128.23	50.48	97TH	138.26	54.43
129.17	50.85	98TH	139.15	54.78
130.53	51.39	99TH	140.45	55.30

# CHEST HEIGHT

## FEMALES

CM		INCHES
117.44	MEAN VALUE	46.24
.12	SE(MEAN)	.05
5.50	STD DEVIATION	2.17
.08	SE(STD DEV)	.03
99.60	MINIMUM	39.21
140.20	MAXIMUM	55.20

SYMMETRY---VETA I	=	.19
KURTOSIS---VETA II	=	3.14
COEF. OF VARIATION	=	4.7%
NUMBER OF SUBJECTS	=	2208

## MALES

CM		INCHES
127.59	MEAN VALUE	50.23
.13	SE(MEAN)	.05
5.61	STD DEVIATION	2.21
.09	SE(STD DEV)	.04
103.50	MINIMUM	40.75
151.20	MAXIMUM	59.53

SYMMETRY---VETA I	=	.08
KURTOSIS---VETA II	=	3.23
COEF. OF VARIATION	=	4.4%
NUMBER OF SUBJECTS	=	1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
1	.05	1	.05
1	.05	2	.09
5	.23	7	.32
4	.18	11	.50
6	.27	17	.77
8	.36	25	1.13
16	.72	41	1.86
23	1.04	64	2.90
35	1.59	99	4.48
46	2.08	145	6.57
76	3.44	221	10.01
97	4.39	318	14.40
91	4.12	409	18.52
112	5.07	521	23.60
162	7.34	683	30.93
172	7.79	855	38.72
147	6.66	1002	45.38
153	6.93	1155	52.31
163	7.38	1318	59.69
140	6.34	1458	66.03
143	6.48	1601	72.51
125	5.66	1726	78.17
102	4.62	1828	82.79
87	3.94	1915	86.73
70	3.17	1985	89.90
48	2.17	2033	92.07
45	2.04	2078	94.11
41	1.86	2119	95.97
34	1.54	2153	97.51
21	.95	2174	98.46
12	.54	2186	99.00
8	.36	2194	99.37
7	.32	2201	99.68
2	.09	2203	99.77
0	.00	2203	99.77
1	.05	2204	99.82
1	.05	2205	99.86
0	.00	2205	99.86
1	.05	2206	99.91
1	.05	2207	99.95
1	.05	2208	100.00

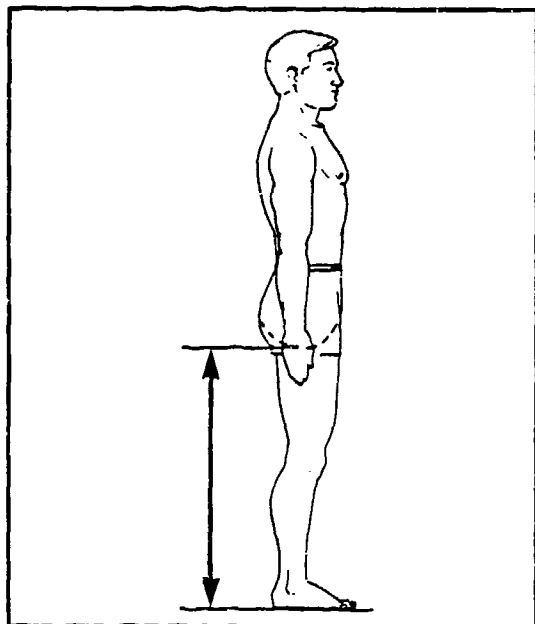
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149.55 - 150.55
150.55 - 151.55

### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
0	.00	1	.06
0	.00	1	.06
0	.00	1	.06
0	.00	1	.06
1	.06	2	.11
0	.00	2	.11
0	.00	2	.11
5	.28	7	.39
2	.11	9	.51
7	.39	16	.90
8	.45	24	1.35
10	.56	34	1.92
28	1.58	62	3.49
27	1.52	89	5.01
32	1.80	121	6.82
53	2.99	174	9.81
71	4.00	245	13.81
80	4.51	325	18.32
89	5.02	414	23.34
110	6.20	524	29.54
133	7.50	657	37.03
129	7.27	786	44.31
140	7.89	926	52.20
103	5.81	1029	58.00
96	5.41	1125	63.42
108	6.09	1233	69.50
104	5.86	1337	75.37
95	5.36	1432	80.72
88	4.96	1520	85.68
64	3.61	1584	89.29
47	2.65	1631	91.94
47	2.65	1678	94.59
25	1.41	1703	96.00
25	1.41	1728	97.41
16	.90	1744	98.31
15	.85	1759	99.15
7	.39	1766	99.55
1	.06	1767	99.61
2	.11	1769	99.72
0	.00	1769	99.72
3	.17	1772	99.89
0	.00	1772	99.89
0	.00	1772	99.89
0	.00	1772	99.89
0	.00	1772	99.89
2	.11	1774	100.00

## (38) CROTCH HEIGHT

The vertical distance between the standing surface and the crotch is measured with an anthropometer. The subject stands erect looking straight ahead. The heels are together and the weight is distributed equally on both feet.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
67.00	26.38	1ST	73.16	28.80	
68.23	26.86	2ND	74.56	29.35	
68.99	27.16	3RD	75.38	29.68	
70.02	27.57	5TH	76.44	30.09	
71.58	28.18	10TH	77.99	30.70	
72.62	28.59	15TH	79.01	31.11	
73.44	28.91	20TH	79.82	31.43	
74.15	29.19	25TH	80.53	31.70	
74.78	29.44	30TH	81.17	31.96	
75.37	29.67	35TH	81.77	32.19	
75.93	29.89	40TH	82.35	32.42	
76.47	30.11	45TH	82.93	32.65	
77.01	30.32	50TH	83.50	32.88	
77.56	30.53	55TH	84.09	33.11	
78.11	30.75	60TH	84.69	33.34	
78.69	30.98	65TH	85.33	33.59	
79.30	31.22	70TH	86.01	33.86	
79.98	31.49	75TH	86.75	34.16	
80.74	31.79	80TH	87.60	34.49	
81.64	32.14	85TH	88.58	34.87	
82.80	32.60	90TH	89.83	35.37	
84.58	33.30	95TH	91.64	36.08	
85.77	33.77	97TH	92.75	36.52	
86.68	34.12	98TH	93.53	36.82	
88.14	34.70	99TH	94.64	37.26	

# CROTCH HEIGHT

## FEMALES

CM		INCHES
77.14	MEAN VALUE	30.37
.09	SE(MEAN)	.04
4.41	STD DEVIATION	1.74
.07	SE(STD DEV)	.03
59.40	MINIMUM	23.39
94.80	MAXIMUM	37.32

SYMMETRY---VETA I = .14  
 KURTOSIS---VETA II = 3.16  
 COEF. OF VARIATION = 5.7%  
 NUMBER OF SUBJECTS = 2208

## MALES

CM		INCHES
83.72	MEAN VALUE	32.96
.11	SE(MEAN)	.04
4.62	STD DEVIATION	1.82
.08	SE(STD DEV)	.03
67.50	MINIMUM	26.57
106.70	MAXIMUM	42.01

SYMMETRY---VETA I = .20  
 KURTOSIS---VETA II = 3.30  
 COEF. OF VARIATION = 5.5%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
1	.05	1	.05
0	.00	1	.05
0	.00	1	.05
0	.00	1	.05
0	.00	1	.05
1	.05	2	.09
4	.18	6	.27
9	.41	15	.68
16	.72	31	1.40
22	1.00	53	2.40
29	1.31	82	3.71
50	2.26	132	5.98
74	3.35	206	9.33
118	5.34	324	14.67
137	6.20	461	20.88
167	7.56	628	28.44
190	8.61	818	37.05
197	8.92	1015	45.97
197	8.92	1212	54.89
200	9.06	1412	63.95
167	7.56	1579	71.51
153	6.93	1732	78.44
133	6.02	1865	84.47
101	4.57	1966	89.04
75	3.40	2041	92.44
60	2.72	2101	95.15
41	1.86	2142	97.01
21	.95	2163	97.96
16	.72	2179	98.69
12	.54	2191	99.23
8	.36	2199	99.59
5	.23	2204	99.82
1	.05	2205	99.86
1	.05	2206	99.91
1	.05	2207	99.95
0	.00	2207	99.95
1	.05	2208	100.00

### CENTIMETERS

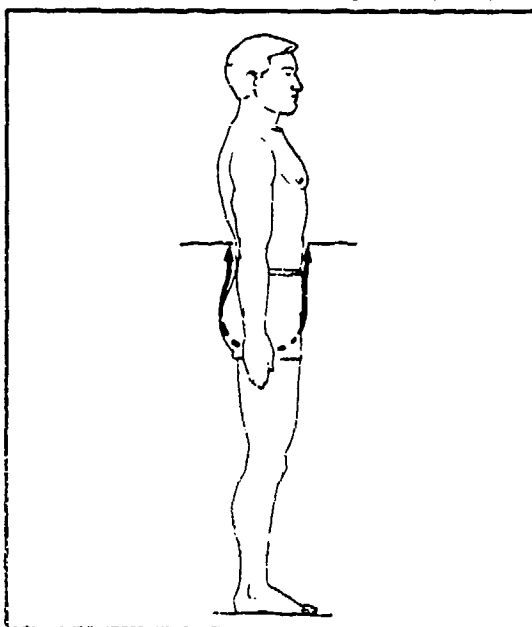
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106.55 - 107.55

### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
0	.00	1	.06
0	.00	1	.06
1	.06	2	.11
6	.34	8	.45
5	.28	13	.73
6	.34	19	1.07
17	.96	36	2.03
20	1.13	56	3.16
31	1.75	87	4.90
56	3.16	143	8.06
78	4.40	221	12.46
112	6.31	333	18.77
112	6.31	445	25.08
127	7.16	572	32.24
172	9.70	744	41.94
156	8.79	900	50.73
139	7.84	1039	58.57
153	8.62	1192	67.19
120	6.76	1312	73.96
112	6.31	1424	80.27
81	4.57	1505	84.84
79	4.45	1584	89.29
53	2.99	1637	92.28
45	2.54	1682	94.81
32	1.80	1714	96.62
29	1.63	1743	98.25
11	.62	1754	98.87
11	.62	1765	99.49
2	.11	1767	99.61
3	.17	1770	99.77
2	.11	1772	99.89
0	.00	1772	99.89
0	.00	1772	99.89
0	.00	1772	99.89
1	.06	1773	99.94
0	.00	1773	99.94
0	.00	1773	99.94
0	.00	1773	99.94
0	.00	1773	99.94
1	.06	1774	100.00

### (39) CROTCH LENGTH (NATURAL INDENTATION)

The distance between the abdomen at the level of the natural indentation of the waist to the same level on the back is measured with a tape passing through the crotch to the right of the genitalia. The tape is held vertically both in front and in back. The subject stands erect looking straight ahead. The heels are together with the weight distributed equally on both feet. The measurement is taken at the maximum point of quiet respiration.



#### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
63.47	24.99	1ST	64.98	25.58
64.78	25.50	2ND	66.22	26.07
65.61	25.83	3RD	67.01	26.38
66.72	26.27	5TH	68.10	26.81
68.46	26.95	10TH	69.80	27.48
69.67	27.43	15TH	70.98	27.94
70.64	27.81	20TH	71.93	28.32
71.50	28.15	25TH	72.78	28.65
72.28	28.46	30TH	73.55	28.96
73.02	28.75	35TH	74.27	29.24
73.74	29.03	40TH	74.97	29.52
74.44	29.31	45TH	75.65	29.79
75.14	29.58	50TH	76.34	30.06
75.86	29.87	55TH	77.05	30.33
76.59	30.15	60TH	77.77	30.62
77.36	30.46	65TH	78.52	30.91
78.19	30.78	70TH	79.33	31.23
79.09	31.14	75TH	80.22	31.58
80.12	31.54	80TH	81.24	31.98
81.32	32.02	85TH	82.43	32.45
82.86	32.62	90TH	83.97	33.06
85.14	33.52	95TH	86.29	33.97
86.61	34.10	97TH	87.82	34.58
87.68	34.52	98TH	88.95	35.02
89.31	35.16	99TH	90.73	35.72

# CROTCH LENGTH (NATURAL INDENTATION)

FEMALES			
<u>CM</u>		<u>INCHES</u>	
75.43	MEAN VALUE	29.70	
.12	SE(MEAN)	.05	
5.57	STD DEVIATION	2.19	
.08	SE(STD DEV)	.03	
59.00	MINIMUM	23.23	
95.30	MAXIMUM	37.52	
SYMMETRY---VETA I = .24			
KURTOSIS---VETA II = 2.90			
COEF. OF VARIATION = 7.4%			
NUMBER OF SUBJECTS = 2208			

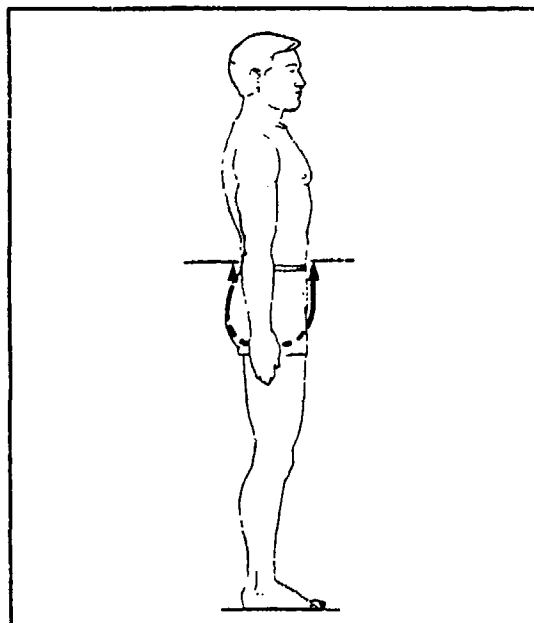
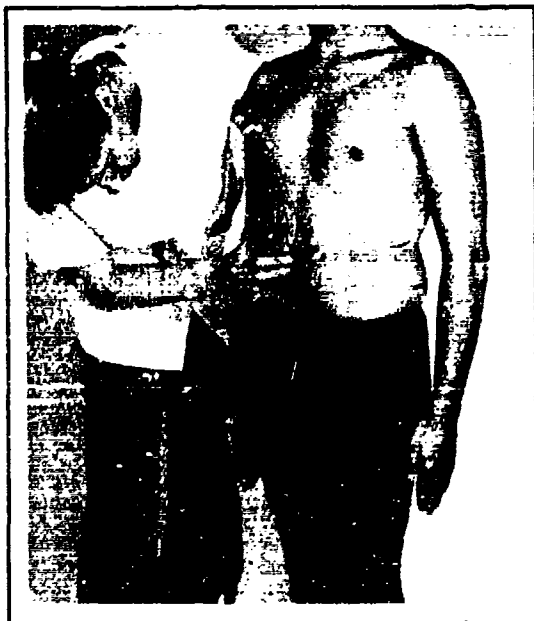
MALES			
<u>CM</u>		<u>INCHES</u>	
76.67	MEAN VALUE	30.18	
.13	SE(MEAN)	.05	
5.55	STD DEVIATION	2.19	
.09	SE(STD DEV)	.04	
60.10	MINIMUM	23.66	
98.20	MAXIMUM	38.66	
SYMMETRY---VETA I = .34			
KURTOSIS---VETA II = 3.14			
COEF. OF VARIATION = 7.2%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct	CumF	CumFPct		
1	.05	1	.05	58.55	- 59.55	1	.06	1	.06		
0	.00	1	.05	59.55	- 60.55	1	.06	2	.11		
5	.23	6	.27	60.55	- 61.55	1	.06	3	.17		
7	.32	13	.59	61.55	- 62.55	4	.23	7	.39		
11	.50	24	1.09	62.55	- 63.55	4	.23	11	.62		
8	.36	32	1.45	63.55	- 64.55	15	.85	26	1.47		
38	1.72	70	3.17	64.55	- 65.55	16	.90	42	2.37		
43	1.95	113	5.12	65.55	- 66.55	22	1.24	64	3.61		
48	2.17	161	7.29	66.55	- 67.55	42	2.37	106	5.98		
66	2.99	227	10.28	67.55	- 68.55	49	2.76	155	8.74		
98	4.44	325	14.72	68.55	- 69.55	63	3.55	218	12.29		
96	4.35	421	19.07	69.55	- 70.55	100	5.64	318	17.93		
137	6.20	558	25.27	70.55	- 71.55	108	6.09	426	24.01		
142	6.43	700	31.70	71.55	- 72.55	116	6.54	542	30.55		
145	6.57	845	38.27	72.55	- 73.55	114	6.43	656	36.98		
152	6.88	997	45.15	73.55	- 74.55	140	7.89	796	44.87		
165	7.47	1162	52.63	74.55	- 75.55	127	7.16	923	52.03		
157	7.11	1319	59.74	75.55	- 76.55	130	7.33	1053	59.36		
165	7.47	1484	67.21	76.55	- 77.55	109	6.14	1162	65.50		
129	5.84	1613	73.05	77.55	- 78.55	98	5.52	1260	71.03		
111	5.02	1724	78.08	78.55	- 79.55	97	5.47	1357	76.49		
88	3.99	1812	82.07	79.55	- 80.55	79	4.45	1436	80.95		
70	3.17	1882	85.24	80.55	- 81.55	67	3.78	1503	84.72		
81	3.67	1963	88.90	81.55	- 82.55	65	3.66	1568	88.39		
61	2.76	2024	91.67	82.55	- 83.55	49	2.76	1617	91.15		
48	2.17	2072	93.84	83.55	- 84.55	44	2.48	1661	93.63		
36	1.63	2108	95.47	84.55	- 85.55	34	1.92	1695	95.55		
35	1.59	2143	97.06	85.55	- 86.55	28	1.58	1723	97.13		
15	.68	2158	97.74	86.55	- 87.55	15	.85	1738	97.97		
23	1.04	2181	98.78	87.55	- 88.55	8	.45	1746	98.42		
9	.41	2190	99.18	88.55	- 89.55	9	.51	1755	98.93		
8	.36	2198	99.55	89.55	- 90.55	5	.28	1760	99.21		
5	.23	2203	99.77	90.55	- 91.55	3	.17	1763	99.38		
4	.18	2207	99.95	91.55	- 92.55	3	.17	1766	99.55		
0	.00	2207	99.95	92.55	- 93.55	3	.17	1769	99.72		
0	.00	2207	99.95	93.55	- 94.55	2	.11	1771	99.83		
1	.05	2208	100.00	94.55	- 95.55	1	.06	1772	99.89		
				95.55	- 96.55	1	.06	1773	99.94		
				96.55	- 97.55	1	.06	1774	100.00		
				97.55	- 98.55						



## (40) CROTCH LENGTH (OMPHALION)

The distance between the abdomen at the level of the center of the navel (omphalion) to the same level on the back is measured with a tape passing through the crotch to the right of the genitalia. The tape is held vertically both in front and in back. The subject stands erect looking straight ahead. The heels are together with the weight distributed equally on both feet. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
51.60	20.31	1ST	54.34	21.39	
52.78	20.78	2ND	55.43	21.82	
53.49	21.06	3RD	56.13	22.10	
54.41	21.42	5TH	57.06	22.47	
55.77	21.96	10TH	58.56	23.05	
56.67	22.31	15TH	59.56	23.45	
57.38	22.59	20TH	60.36	23.76	
57.99	22.83	25TH	61.05	24.04	
58.35	23.05	30TH	61.68	24.28	
59.06	23.25	35TH	62.26	24.51	
59.56	23.45	40TH	62.81	24.73	
60.05	23.64	45TH	63.35	24.94	
60.54	23.83	50TH	63.89	25.15	
61.03	24.03	55TH	64.43	25.37	
61.54	24.23	60TH	64.98	25.58	
62.07	24.44	65TH	65.55	25.81	
62.64	24.66	70TH	66.16	26.05	
63.27	24.91	75TH	66.83	26.31	
63.98	25.19	80TH	67.59	26.61	
64.61	25.52	85TH	68.48	26.96	
65.87	25.93	90TH	69.63	27.41	
67.46	26.56	95TH	71.40	28.11	
68.18	26.96	97TH	72.60	28.58	
69.22	27.25	98TH	73.50	28.94	
70.34	27.69	99TH	74.97	29.52	

# CROTCH LENGTH (OMPHALION)

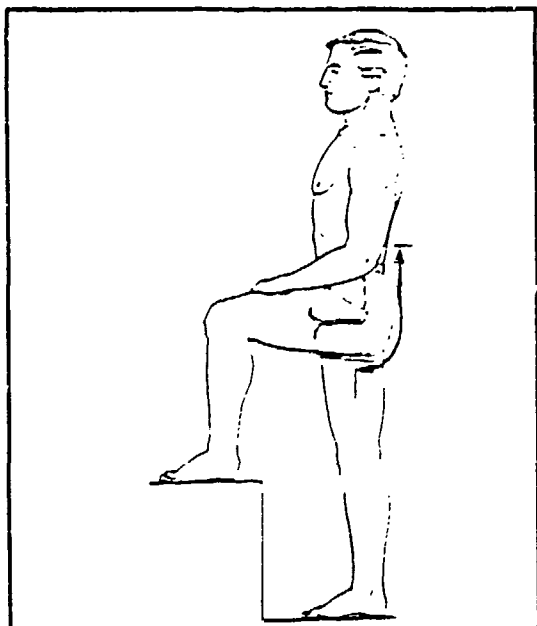
FEMALES			
CM		INCHES	
60.67	MEAN VALUE	23.89	
.08	SE(MEAN)	.03	
3.94	STD DEVIATION	1.55	
.06	SE(STD DEV)	.02	
48.70	MINIMUM	19.17	
76.30	MAXIMUM	30.04	
SYMMETRY---VETA I = .15			
KURTOSIS---VETA II = 3.04			
COEF. OF VARIATION = 6.5%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
64.01	MEAN VALUE	25.20	
.10	SE(MEAN)	.04	
4.32	STD DEVIATION	1.70	
.07	SE(STD DEV)	.03	
51.10	MINIMUM	20.12	
79.10	MAXIMUM	31.14	
SYMMETRY---VETA I = .19			
KURTOSIS---VETA II = 3.06			
COEF. OF VARIATION = 6.8%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES				CENTIMETERS				MALES			
F	FPct	CumF	CumFPct					F	FPct	CumF	CumFPct
2	.09	2	.09	48.55 -	49.55						
11	.50	13	.59	49.55 -	50.55						
10	.45	23	1.04	50.55 -	51.55			1	.06	1	.06
19	.86	42	1.90	51.55 -	52.55			1	.06	2	.11
23	1.04	65	2.94	52.55 -	53.55			6	.34	8	.45
50	2.26	115	5.21	53.55 -	54.55			9	.51	17	.96
83	3.76	198	8.57	54.55 -	55.55			26	1.47	43	2.42
116	5.25	314	14.22	55.55 -	56.55			26	1.47	69	3.89
176	7.97	490	22.19	56.55 -	57.55			42	2.37	111	6.26
193	8.74	683	30.93	57.55 -	58.55			56	3.16	167	9.41
213	9.65	896	40.58	58.55 -	59.55			88	4.96	255	14.37
223	10.10	1119	50.68	59.55 -	60.55			121	6.82	376	21.20
211	9.56	1330	60.24	60.55 -	61.55			145	8.17	521	29.37
208	9.42	1538	69.66	61.55 -	62.55			162	9.13	683	38.50
180	8.15	1718	77.81	62.55 -	63.55			153	8.62	836	47.13
134	6.07	1852	83.88	63.55 -	64.55			167	9.41	1003	56.54
107	4.85	1959	88.72	64.55 -	65.55			151	8.51	1154	65.05
88	3.99	2047	92.71	65.55 -	66.55			131	7.38	1285	72.44
61	2.76	2108	95.47	66.55 -	67.55			143	8.06	1428	80.50
42	1.90	2150	97.37	67.55 -	68.55			86	4.85	1514	85.34
26	1.18	2176	98.55	68.55 -	69.55			75	4.23	1589	89.57
13	.59	2189	99.14	69.55 -	70.55			70	3.95	1659	93.52
11	.50	2200	99.64	70.55 -	71.55			32	1.80	1691	95.32
5	.23	2205	99.86	71.55 -	72.55			31	1.75	1722	97.07
2	.09	2207	99.95	72.55 -	73.55			17	.96	1739	98.03
0	.00	2207	99.95	73.55 -	74.55			15	.85	1754	98.87
0	.00	2207	99.95	74.55 -	75.55			6	.34	1760	99.21
1	.05	2208	100.00	75.55 -	76.55			7	.39	1767	99.61
				76.55 -	77.55			3	.17	1770	99.77
				77.55 -	78.55			3	.17	1773	99.94
				78.55 -	79.55			1	.06	1774	100.00

# (41) CROTCH LENGTH, POSTERIOR (NATURAL INDENTATION)

The surface distance from the crotch at the inner thigh landmark to the back of the waist at the posterior natural-indentation landmark is measured with a tape. The tape passes between the buttocks to the back of the waist. The subject stands with the left foot on a platform so that the knee is flexed.



## THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
31.46	12.39	1ST	32.64	12.85
32.41	12.76	2ND	33.31	13.11
32.98	12.98	3RD	33.74	13.28
33.70	13.27	5TH	34.32	13.51
34.77	13.69	10TH	35.22	13.87
35.48	13.97	15TH	35.85	14.11
36.04	14.19	20TH	36.56	14.31
36.52	14.39	25TH	36.80	14.49
36.95	14.55	30TH	37.21	14.65
37.36	14.71	35TH	37.59	14.80
37.75	14.86	40TH	37.96	14.94
38.14	15.01	45TH	38.32	15.09
38.52	15.17	50TH	38.68	15.23
38.91	15.32	55TH	39.05	15.37
39.32	15.48	60TH	39.42	15.52
39.74	15.64	65TH	39.81	15.67
40.19	15.82	70TH	40.23	15.84
40.68	16.02	75TH	40.68	16.02
41.24	16.24	80TH	41.20	16.22
41.90	16.49	85TH	41.79	16.45
42.73	16.82	90TH	42.55	16.75
43.97	17.31	95TH	43.67	17.19
44.75	17.62	97TH	44.39	17.48
45.31	17.84	98TH	44.90	17.68
46.14	18.17	99TH	45.69	17.99

# CROTCH LENGTH, POSTERIOR (NATURAL INDENTATION)

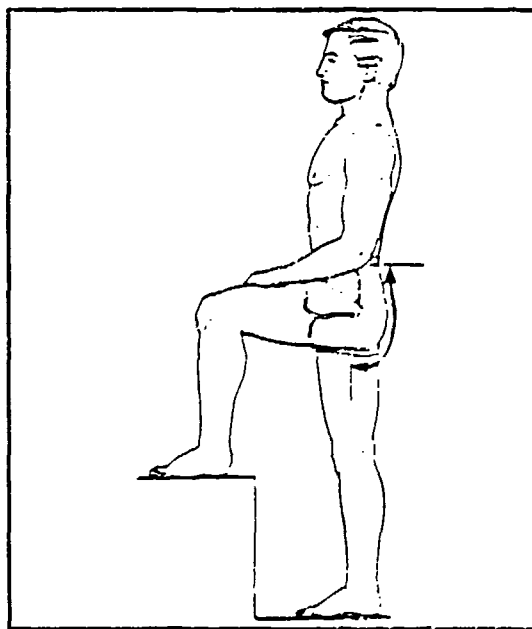
FEMALES			
CM		INCHES	
38.64	MEAN VALUE	15.21	
.07	SE(MEAN)	.03	
3.10	STD DEVIATION	1.22	
.05	SE(STD DEV)	.02	
28.90	MINIMUM	11.38	
49.50	MAXIMUM	19.49	
SYMMETRY---VETA I = .15			
KURTOSIS---VETA II = 3.00			
COEF. OF VARIATION = 8.0%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
38.80	MEAN VALUE	15.27	
.07	SE(MEAN)	.03	
2.85	STD DEVIATION	1.12	
.05	SE(STD DEV)	.02	
29.60	MINIMUM	11.65	
48.70	MAXIMUM	19.17	
SYMMETRY---VETA I = .23			
KURTOSIS---VETA II = 3.00			
COEF. OF VARIATION = 7.3%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
2	.09	2	.09	28.75 -	29.25	1	.06	1	.06		
0	.00	2	.09	29.25 -	29.75	0	.00	1	.06		
1	.05	3	.14	29.75 -	30.25	0	.00	1	.06		
4	.18	7	.32	30.25 -	30.75	2	.11	3	.17		
11	.50	18	.82	30.75 -	31.25	1	.06	4	.23		
8	.36	26	1.18	31.25 -	31.75	7	.39	11	.62		
14	.63	40	1.81	31.75 -	32.25	9	.51	20	1.13		
20	.91	60	2.72	32.25 -	32.75	12	.68	32	1.80		
15	.68	75	3.40	32.75 -	33.25	22	1.24	54	3.04		
37	1.68	112	5.07	33.25 -	33.75	31	1.75	85	4.79		
45	2.04	157	7.11	33.75 -	34.25	38	2.14	123	6.93		
62	2.81	219	9.92	34.25 -	34.75	43	2.42	166	9.36		
72	3.26	291	13.18	34.75 -	35.25	85	4.79	251	14.15		
87	3.94	378	17.12	35.25 -	35.75	87	4.90	338	19.05		
104	4.71	482	21.83	35.75 -	36.25	103	5.81	441	24.86		
119	5.39	601	27.22	36.25 -	36.75	105	5.92	546	30.78		
140	6.34	741	33.56	36.75 -	37.25	119	6.71	665	37.49		
141	6.39	882	39.95	37.25 -	37.75	118	6.65	783	44.14		
156	7.07	1038	47.01	37.75 -	38.25	116	6.54	899	50.68		
144	6.52	1182	53.53	38.25 -	38.75	118	6.65	1017	57.33		
130	5.89	1312	59.42	38.75 -	39.25	119	6.71	1136	64.04		
103	4.66	1415	64.09	39.25 -	39.75	109	6.14	1245	70.18		
128	5.80	1543	69.88	39.75 -	40.25	96	5.41	1341	75.59		
135	6.11	1678	76.00	40.25 -	40.75	85	4.79	1426	80.38		
96	4.35	1774	80.34	40.75 -	41.25	75	4.23	1501	84.61		
90	4.08	1864	84.42	41.25 -	41.75	78	4.40	1579	89.01		
67	3.03	1931	87.45	41.75 -	42.25	37	2.09	1616	91.05		
67	3.03	1998	90.49	42.25 -	42.75	34	1.92	1650	93.01		
44	1.99	2042	92.48	42.75 -	43.25	41	2.31	1691	95.32		
41	1.86	2083	94.34	43.25 -	43.75	23	1.30	1714	96.62		
33	1.49	2116	95.83	43.75 -	44.25	21	1.18	1735	97.80		
22	1.00	2138	96.83	44.25 -	44.75	14	.79	1749	98.59		
23	1.04	2161	97.87	44.75 -	45.25	8	.45	1757	99.04		
16	.72	2177	98.60	45.25 -	45.75	3	.17	1760	99.21		
13	.59	2190	99.18	45.75 -	46.25	2	.11	1762	99.32		
6	.27	2196	99.46	46.25 -	46.75	3	.17	1765	99.49		
4	.18	2200	99.64	46.75 -	47.25	5	.28	1770	99.77		
1	.05	2201	99.68	47.25 -	47.75	3	.17	1773	99.94		
5	.23	2206	99.91	47.75 -	48.25	1	.06	1774	100.00		
0	.00	2206	99.91	48.25 -	48.75						
0	.00	2206	99.91	48.75 -	49.25						
2	.09	2208	100.00	49.25 -	49.75						

## (42) CROTCH LENGTH, POSTERIOR (OMPHALION)

The surface distance from the crotch at the inner thigh landmark to the back of the waist at the level of the center of the navel (omphalion) is measured with a tape. The tape passes between the buttocks to the back of the waist. The subject stands with the left foot on a platform so that the knee is flexed.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
24.71	9.73	1ST	25.97	10.22	
25.46	10.02	2ND	26.58	10.46	
25.92	10.21	3RD	26.97	10.62	
26.54	10.45	5TH	27.53	10.84	
27.46	10.81	10TH	28.40	11.18	
28.07	11.05	15TH	29.01	11.42	
28.55	11.24	20TH	29.49	11.61	
28.96	11.40	25TH	29.91	11.77	
29.33	11.55	30TH	30.28	11.92	
29.66	11.68	35TH	30.63	12.06	
29.98	11.80	40TH	30.96	12.19	
30.29	11.92	45TH	31.28	12.32	
30.59	12.04	50TH	31.60	12.44	
30.90	12.17	55TH	31.92	12.57	
31.21	12.29	60TH	32.24	12.69	
31.54	12.42	65TH	32.57	12.82	
31.88	12.55	70TH	32.91	12.96	
32.26	12.70	75TH	33.29	13.11	
32.68	12.87	80TH	33.71	13.27	
33.18	13.06	85TH	34.18	13.46	
33.83	13.32	90TH	34.78	13.69	
34.83	13.71	95TH	35.66	14.04	
35.50	13.98	97TH	36.22	14.26	
36.01	14.18	98TH	36.63	14.42	
36.83	14.50	99TH	37.27	14.67	

# CROTCH LENGTH, POSTERIOR (OMPHALION)

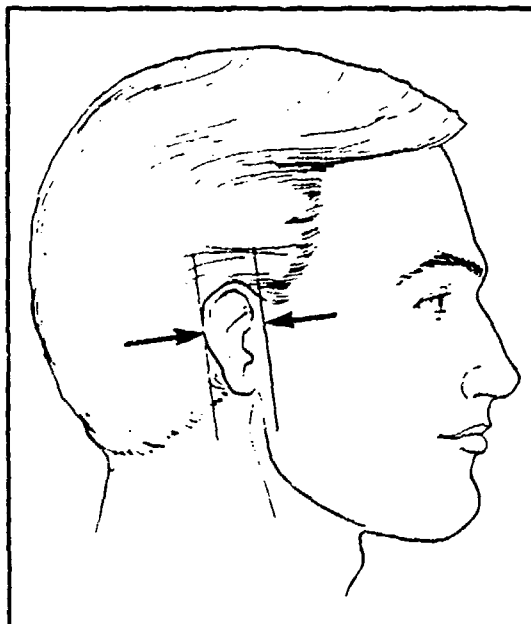
FEMALES			
CM		INCHES	
30.62	MEAN VALUE	12.05	
.05	SE(MEAN)	.02	
2.52	STD DEVIATION	.99	
.04	SE(STD DEV)	.00	
20.70	MINIMUM	8.15	
41.30	MAXIMUM	16.26	
SYMMETRY---VETA I = .08			
KURTOSIS---VETA II = 3.33			
COEF. OF VARIATION = 8.2%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
31.60	MEAN VALUE	12.44	
.06	SE(MEAN)	.02	
2.47	STD DEVIATION	.97	
.04	SE(STD DEV)	.02	
23.30	MINIMUM	9.17	
40.30	MAXIMUM	15.87	
SYMMETRY---VETA I = .04			
KURTOSIS---VETA II = 3.00			
COEF. OF VARIATION = 7.8%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	20.25 -	20.75						
0	.00	1	.05	20.75 -	21.25						
1	.05	2	.09	21.25 -	21.75						
0	.00	2	.09	21.75 -	22.25						
1	.05	3	.14	22.25 -	22.75						
1	.05	4	.18	22.75 -	23.25						
5	.23	9	.41	23.25 -	23.75	1	.06	1	.06		
4	.18	13	.59	23.75 -	24.25	1	.06	2	.11		
10	.45	23	1.04	24.25 -	24.75	1	.06	3	.17		
9	.41	32	1.45	24.75 -	25.25	4	.23	7	.39		
25	1.13	57	2.58	25.25 -	25.75	5	.28	12	.68		
30	1.36	87	3.94	25.75 -	26.25	11	.62	23	1.30		
43	1.95	130	5.89	26.25 -	26.75	20	1.13	43	2.42		
62	2.81	192	8.70	26.75 -	27.25	25	1.41	68	3.83		
78	3.53	270	12.23	27.25 -	27.75	49	2.76	117	6.60		
83	3.76	353	15.99	27.75 -	28.25	44	2.48	161	9.08		
145	6.57	498	22.55	28.25 -	28.75	58	3.27	219	12.34		
141	6.39	639	28.94	28.75 -	29.25	82	4.62	301	16.97		
154	6.97	793	35.91	29.25 -	29.75	97	5.47	398	22.44		
191	8.65	984	44.57	29.75 -	30.25	128	7.22	526	29.65		
182	8.24	1166	52.81	30.25 -	30.75	123	6.93	649	36.58		
173	7.84	1339	60.64	30.75 -	31.25	139	7.84	788	44.42		
156	7.07	1495	67.71	31.25 -	31.75	127	7.16	915	51.58		
164	7.43	1659	75.14	31.75 -	32.25	155	8.74	1070	60.32		
128	5.80	1787	80.93	32.25 -	32.75	127	7.16	1197	67.47		
100	4.53	1887	85.46	32.75 -	33.25	137	7.72	1334	75.20		
91	4.12	1978	89.58	33.25 -	33.75	112	6.31	1446	81.51		
64	2.90	2042	92.48	33.75 -	34.25	89	5.02	1535	86.53		
54	2.45	2096	94.93	34.25 -	34.75	56	3.16	1591	89.58		
37	1.68	2133	96.60	34.75 -	35.25	62	3.49	1653	93.18		
18	.82	2151	97.42	35.25 -	35.75	32	1.80	1685	94.98		
18	.82	2169	98.23	35.75 -	36.25	32	1.80	1717	96.79		
16	.72	2185	98.96	36.25 -	36.75	30	1.69	1747	98.48		
12	.54	2197	99.50	36.75 -	37.25	10	.56	1757	99.04		
3	.14	2200	99.64	37.25 -	37.75	3	.17	1760	99.21		
4	.18	2204	99.82	37.75 -	38.25	5	.28	1765	99.49		
1	.05	2205	99.86	38.25 -	38.75	4	.23	1769	99.72		
1	.05	2206	99.91	38.75 -	39.25	2	.11	1771	99.83		
0	.00	2206	99.91	39.25 -	39.75	1	.06	1772	99.89		
1	.05	2207	99.95	39.75 -	40.25	1	.06	1773	99.94		
0	.00	2207	99.95	40.25 -	40.75	1	.06	1774	100.00		
0	.00	2207	99.95	40.75 -	41.25						
1	.05	2208	100.00	41.25 -	41.75						

## (43) EAR BREADTH

The maximum breadth of the right ear perpendicular to its long axis is measured with a sliding caliper.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
2.93	1.15	1ST	3.15	1.24	
2.98	1.17	2ND	3.22	1.27	
3.02	1.19	3RD	3.27	1.29	
3.07	1.21	5TH	3.33	1.31	
3.15	1.24	10TH	3.43	1.35	
3.21	1.26	15TH	3.49	1.38	
3.26	1.28	20TH	3.54	1.40	
3.30	1.30	25TH	3.59	1.41	
3.34	1.31	30TH	3.63	1.43	
3.37	1.33	35TH	3.66	1.44	
3.41	1.34	40TH	3.70	1.46	
3.44	1.35	45TH	3.73	1.47	
3.47	1.37	50TH	3.76	1.48	
3.50	1.38	55TH	3.80	1.49	
3.54	1.39	60TH	3.83	1.51	
3.57	1.41	65TH	3.86	1.52	
3.61	1.42	70TH	3.90	1.54	
3.65	1.44	75TH	3.94	1.55	
3.69	1.45	80TH	3.98	1.57	
3.74	1.47	85TH	4.04	1.59	
3.81	1.50	90TH	4.11	1.62	
3.90	1.54	95TH	4.22	1.66	
3.96	1.56	97TH	4.30	1.69	
4.01	1.58	98TH	4.36	1.72	
4.07	1.60	99TH	4.47	1.76	

# EAR BREADTH

FEMALES			
CM		INCHES	
3.48	MEAN VALUE	1.37	
.00	SE (MEAN)	.00	
.25	STD DEVIATION	.10	
.00	SE (STD DEV)	.00	
2.70	MINIMUM	1.06	
4.40	MAXIMUM	1.73	
SYMMETRY---VETA I = .14			
KURTOSIS---VETA II = 2.91			
COEF. OF VARIATION = 7.2%			
NUMBER OF SUBJECTS = 2208			

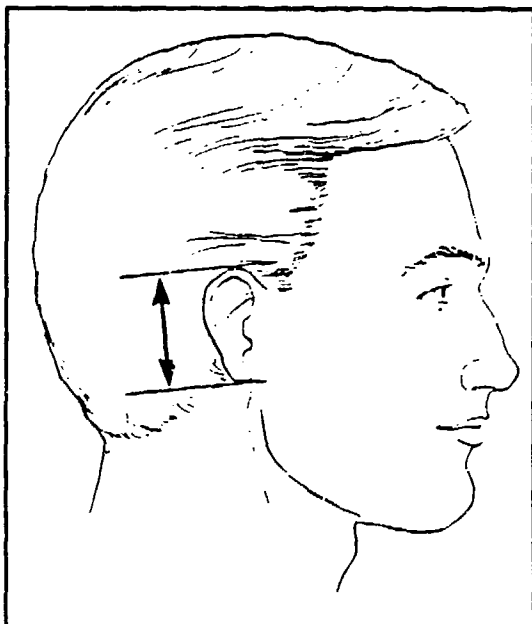
MALES			
CM		INCHES	
3.77	MEAN VALUE	1.48	
.00	SE (MEAN)	.00	
.27	STD DEVIATION	.11	
.00	SE (STD DEV)	.00	
2.70	MINIMUM	1.06	
5.10	MAXIMUM	2.01	
SYMMETRY---VETA I = .20			
KURTOSIS---VETA II = 3.61			
COEF. OF VARIATION = 7.2%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE															
FEMALES								MALES							
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct						
1	.05	1	.05	2.65 -	2.75	1	.06	1	.06						
8	.36	9	.41	2.75 -	2.85	0	.00	1	.06						
15	.68	24	1.09	2.85 -	2.95	1	.06	2	.11						
66	2.39	90	4.08	2.95 -	3.05	4	.23	6	.34						
112	5.07	202	9.15	3.05 -	3.15	10	.56	16	.90						
205	9.28	407	18.43	3.15 -	3.25	33	1.86	49	2.76						
300	13.59	707	32.02	3.25 -	3.35	47	2.65	96	5.41						
311	14.09	1018	46.11	3.35 -	3.45	90	5.07	186	10.48						
358	16.21	1376	62.32	3.45 -	3.55	174	9.81	360	20.29						
296	13.41	1672	75.72	3.55 -	3.65	235	13.25	595	33.54						
225	10.19	1897	85.91	3.65 -	3.75	264	14.88	859	48.42						
137	6.20	2034	92.12	3.75 -	3.85	255	14.37	1114	62.80						
109	4.94	2143	97.06	3.85 -	3.95	246	13.87	1360	76.66						
38	1.72	2181	98.78	3.95 -	4.05	170	9.58	1530	86.25						
18	.82	2199	99.59	4.05 -	4.15	104	5.86	1634	92.11						
5	.23	2204	99.82	4.15 -	4.25	72	4.06	1706	96.17						
2	.09	2206	99.91	4.25 -	4.35	31	1.75	1737	97.91						
2	.09	2208	100.00	4.35 -	4.45	17	.96	1754	98.87						
				4.45 -	4.55	11	.62	1765	99.49						
				4.55 -	4.65	5	.28	1770	99.77						
				4.65 -	4.75	2	.11	1772	99.89						
				4.75 -	4.85	1	.06	1773	99.94						
				4.85 -	4.95	0	.00	1773	99.94						
				4.95 -	5.05	0	.00	1773	99.94						
				5.05 -	5.15	1	.06	1774	100.00						



## (44) EAR LENGTH

The length of the right ear from its highest to lowest points on a line parallel to the long axis of the ear is measured with a sliding caliper.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
5.11	2.01	1ST	5.44	2.14	
5.21	2.05	2ND	5.59	2.20	
5.27	2.08	3RD	5.68	2.23	
5.36	2.11	5TH	5.78	2.28	
5.50	2.16	10TH	5.94	2.34	
5.59	2.20	15TH	6.04	2.38	
5.66	2.23	20TH	6.11	2.41	
5.72	2.25	25TH	6.18	2.43	
5.78	2.28	30TH	6.24	2.46	
5.83	2.30	35TH	6.29	2.48	
5.88	2.32	40TH	6.35	2.50	
5.93	2.33	45TH	6.40	2.52	
5.97	2.35	50TH	6.45	2.54	
6.02	2.37	55TH	6.50	2.56	
6.07	2.39	60TH	6.55	2.58	
6.12	2.41	65TH	6.61	2.60	
6.17	2.43	70TH	6.67	2.63	
6.23	2.45	75TH	6.74	2.65	
6.29	2.48	80TH	6.82	2.68	
6.37	2.51	85TH	6.91	2.72	
6.46	2.54	90TH	7.03	2.77	
6.60	2.60	95TH	7.21	2.84	
6.69	2.64	97TH	7.34	2.89	
6.76	2.66	98TH	7.43	2.92	
6.87	2.71	99TH	7.57	2.98	

# EAR LENGTH

## FEMALES

CM		INCHES
5.98	MEAN VALUE	2.35
.00	SE(MEAN)	.00
.38	STD DEVIATION	.15
.00	SE(STD DEV)	.00
4.50	MINIMUM	1.77
7.20	MAXIMUM	2.83
SYMMETRY---VETA I = .02		
KURTOSIS---VETA II = 3.08		
COEF. OF VARIATION = 6.3%		
NUMBER OF SUBJECTS = 2208		

## MALES

CM		INCHES
6.47	MEAN VALUE	2.55
.00	SE(MEAN)	.00
.43	STD DEVIATION	.17
.00	SE(STD DEV)	.00
5.10	MINIMUM	2.01
8.00	MAXIMUM	3.15
SYMMETRY---VETA I = .19		
KURTOSIS---VETA II = 3.23		
COEF. OF VARIATION = 6.7%		
NUMBER OF SUBJECTS = 1774		

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
1	.05	1	.05
2	.09	3	.14
0	.00	3	.14
0	.00	3	.14
1	.05	4	.18
11	.50	15	.68
15	.68	30	1.36
21	.95	51	2.31
51	2.31	102	4.62
67	3.03	169	7.65
102	4.62	271	12.27
155	7.02	426	19.29
186	8.42	612	27.72
220	9.96	832	37.68
193	8.74	1025	46.42
246	11.14	1271	57.56
219	9.92	1490	67.48
207	9.38	1697	76.86
169	7.65	1866	84.51
120	5.43	1986	89.95
78	3.53	2064	93.48
62	2.81	2126	96.29
34	1.54	2160	97.83
24	1.09	2184	98.91
9	.41	2193	99.32
9	.41	2202	99.73
5	.23	2207	99.95
1	.05	2208	100.00

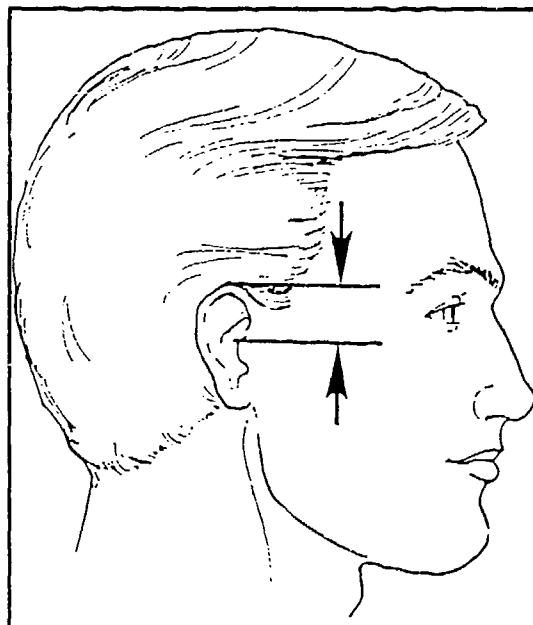
CENTIMETERS
4.45 - 4.55
4.55 - 4.65
4.65 - 4.75
4.75 - 4.85
4.85 - 4.95
4.95 - 5.05
5.05 - 5.15
5.15 - 5.25
5.25 - 5.35
5.35 - 5.45
5.45 - 5.55
5.55 - 5.65
5.65 - 5.75
5.75 - 5.85
5.85 - 5.95
5.95 - 6.05
6.05 - 6.15
6.15 - 6.25
6.25 - 6.35
6.35 - 6.45
6.45 - 6.55
6.55 - 6.65
6.65 - 6.75
6.75 - 6.85
6.85 - 6.95
6.95 - 7.05
7.05 - 7.15
7.15 - 7.25
7.25 - 7.35
7.35 - 7.45
7.45 - 7.55
7.55 - 7.65
7.65 - 7.75
7.75 - 7.85
7.85 - 7.95
7.95 - 8.05

### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
1	.06	2	.11
5	.28	7	.39
10	.56	17	.96
13	.73	30	1.69
21	1.18	51	2.87
19	1.07	70	3.95
42	2.37	112	6.31
68	3.83	180	10.15
76	4.28	256	14.43
144	8.12	400	22.55
174	9.81	574	32.36
161	9.08	735	41.43
148	8.34	883	49.77
153	8.62	1036	58.40
165	9.30	1201	67.70
143	8.06	1344	75.76
123	6.93	1467	82.69
85	4.79	1552	87.49
65	3.66	1617	91.15
50	2.82	1667	93.97
27	1.52	1694	95.49
29	1.63	1723	97.13
18	1.01	1741	98.14
14	.79	1755	98.93
9	.51	1764	99.44
4	.23	1768	99.66
5	.28	1773	99.94
0	.00	1773	99.94
1	.06	1774	100.00

## (45) EAR LENGTH ABOVE TRAGION

The distance from the right trigion landmark to the top of the right ear on a line parallel to the long axis of the ear is measured with a sliding caliper.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
2.31	.91	1ST	2.57	1.01	
2.38	.94	2ND	2.65	1.04	
2.43	.96	3RD	2.70	1.06	
2.49	.98	5TH	2.77	1.09	
2.58	1.02	10TH	2.87	1.13	
2.64	1.04	15TH	2.94	1.16	
2.68	1.06	20TH	2.99	1.18	
2.72	1.07	25TH	3.03	1.19	
2.76	1.09	30TH	3.06	1.21	
2.79	1.10	35TH	3.10	1.22	
2.82	1.11	40TH	3.13	1.23	
2.85	1.12	45TH	3.16	1.24	
2.87	1.13	50TH	3.19	1.26	
2.90	1.14	55TH	3.22	1.27	
2.93	1.15	60TH	3.25	1.28	
2.96	1.17	65TH	3.28	1.29	
2.99	1.18	70TH	3.31	1.30	
3.03	1.19	75TH	3.35	1.32	
3.07	1.21	80TH	3.39	1.33	
3.11	1.22	85TH	3.44	1.35	
3.17	1.25	90TH	3.50	1.38	
3.26	1.28	95TH	3.60	1.42	
3.32	1.31	97TH	3.67	1.44	
3.36	1.32	98TH	3.73	1.47	
3.44	1.35	99TH	3.82	1.50	

# EAR LENGTH ABOVE TRAGION

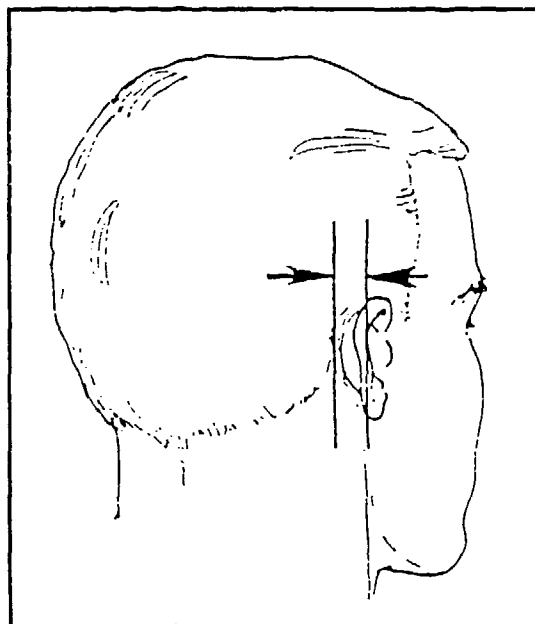
FEMALES		
<u>CM</u>		<u>INCHES</u>
2.87	MEAN VALUE	1.13
.00	SE (MEAN)	.00
.23	STD DEVIATION	.09
.00	SE (STD DEV)	.00
2.00	MINIMUM	.79
3.80	MAXIMUM	1.50
SYMMETRY---VETA I = .04		
KURTOSIS---VETA II = 3.39		
COEF. OF VARIATION = 8.1%		
NUMBER OF SUBJECTS = 2208		

MALES		
<u>CM</u>		<u>INCHES</u>
3.19	MEAN VALUE	1.25
.00	SE (MEAN)	.00
.25	STD DEVIATION	.10
.00	SE (STD DEV)	.00
2.40	MINIMUM	.94
4.20	MAXIMUM	1.65
SYMMETRY---VETA I = .05		
KURTOSIS---VETA II = 3.46		
COEF. OF VARIATION = 7.8%		
NUMBER OF SUBJECTS = 1774		

FREQUENCY TABLE									
FEMALES					MALES				
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>	F	FPct	CumF	CumFPct	
1	.05	1	.05	1.95 - 2.05					
1	.05	2	.09	2.05 - 2.15					
11	.50	13	.59	2.15 - 2.25					
18	.82	31	1.40	2.25 - 2.35					
39	1.77	70	3.17	2.35 - 2.45	2	.11	2	.11	
103	4.66	173	7.84	2.45 - 2.55	10	.56	12	.68	
171	7.74	344	15.58	2.55 - 2.65	23	1.30	35	1.97	
299	13.54	643	29.12	2.65 - 2.75	37	2.09	72	4.06	
369	16.71	1012	45.83	2.75 - 2.85	84	4.74	156	8.79	
374	16.94	1386	62.77	2.85 - 2.95	125	7.05	281	15.84	
351	15.90	1737	78.67	2.95 - 3.05	208	11.72	489	27.56	
221	10.01	1958	88.68	3.05 - 3.15	275	15.50	764	43.07	
135	6.11	2093	94.79	3.15 - 3.25	296	16.69	1060	59.75	
72	3.26	2165	98.05	3.25 - 3.35	295	16.63	1355	76.38	
22	1.00	2187	99.05	3.35 - 3.45	194	10.94	1549	87.32	
14	.63	2201	99.68	3.45 - 3.55	106	5.98	1655	93.29	
2	.09	2203	99.77	3.55 - 3.65	58	3.27	1713	96.56	
3	.14	2206	99.91	3.65 - 3.75	31	1.75	1744	98.31	
2	.09	2208	100.00	3.75 - 3.85	19	1.07	1763	99.38	
				3.85 - 3.95	6	.34	1769	99.72	
				3.95 - 4.05	2	.11	1771	99.83	
				4.05 - 4.15	2	.11	1773	99.94	
				4.15 - 4.25	1	.06	1774	100.00	

## (46) EAR PROTRUSION

The horizontal distance between the mastoid process (the bony area behind the bottom of the ear) and the outside edge of the right ear at its most lateral point is measured using a sliding caliper with its slide reversed.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
1.56	.61	1ST	1.66	.66	
1.62	.64	2ND	1.74	.69	
1.66	.66	3RD	1.79	.71	
1.72	.68	5TH	1.86	.73	
1.81	.71	10TH	1.98	.78	
1.87	.74	15TH	2.06	.81	
1.92	.76	20TH	2.12	.83	
1.96	.77	25TH	2.17	.86	
2.01	.79	30TH	2.22	.88	
2.05	.81	35TH	2.27	.89	
2.08	.82	40TH	2.32	.91	
2.12	.84	45TH	2.36	.93	
2.16	.85	50TH	2.40	.95	
2.20	.87	55TH	2.45	.96	
2.24	.88	60TH	2.49	.98	
2.28	.90	65TH	2.54	1.00	
2.33	.92	70TH	2.59	1.02	
2.38	.94	75TH	2.65	1.04	
2.44	.96	80TH	2.71	1.07	
2.51	.99	85TH	2.79	1.10	
2.59	1.02	90TH	2.88	1.13	
2.72	1.07	95TH	3.03	1.19	
2.81	1.11	97TH	3.13	1.23	
2.87	1.13	98TH	3.21	1.26	
2.97	1.17	99TH	3.33	1.31	

# EAR PROTRUSION

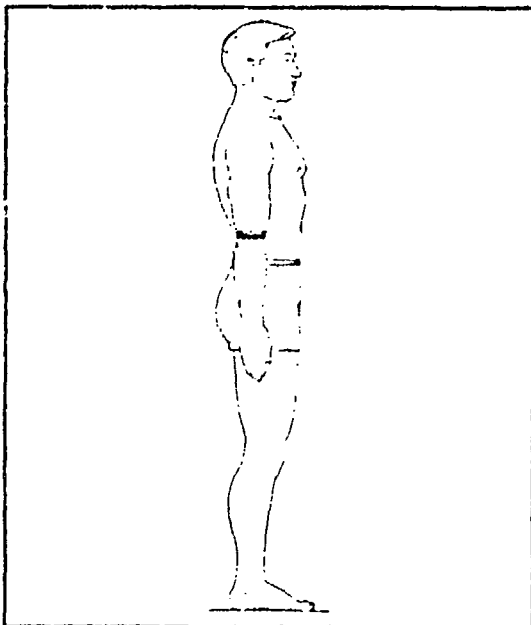
FEMALES			
CM		INCHES	
2.18	MEAN VALUE	.86	
.00	SE (MEAN)	.00	
.30	STD DEVIATION	.12	
.00	SE (STD DEV)	.00	
1.40	MINIMUM	.55	
3.30	MAXIMUM	1.30	
SYMMETRY---VETA I = .37			
KURTOSIS---VETA II = 3.05			
COEF. OF VARIATION = 13.9%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
2.42	MEAN VALUE	.95	
.00	SE (MEAN)	.00	
.36	STD DEVIATION	.14	
.00	SE (STD DEV)	.00	
1.30	MINIMUM	.51	
4.00	MAXIMUM	1.57	
SYMMETRY---VETA I = .31			
KURTOSIS---VETA II = 3.25			
COEF. OF VARIATION = 14.7%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
3	.14	3	.14	1.25 -	1.35	1	.06	1	.06		
16	.72	19	.86	1.35 -	1.45	0	.00	1	.06		
34	1.54	53	2.40	1.45 -	1.55	2	.11	3	.17		
79	3.58	132	5.98	1.55 -	1.65	14	.79	17	.96		
167	7.56	299	13.54	1.65 -	1.75	16	.90	33	1.86		
218	9.87	517	23.41	1.75 -	1.85	44	2.48	77	4.34		
270	12.23	787	35.64	1.85 -	1.95	73	4.11	150	8.46		
259	11.73	1046	47.37	1.95 -	2.05	107	6.03	257	14.49		
312	14.13	1358	61.50	2.05 -	2.15	139	7.84	396	22.32		
239	10.82	1597	72.33	2.15 -	2.25	191	10.77	587	33.09		
214	9.69	1811	82.02	2.25 -	2.35	206	11.61	793	44.70		
133	6.02	1944	88.04	2.35 -	2.45	188	10.60	981	55.30		
104	4.71	2048	92.75	2.45 -	2.55	181	10.20	1162	65.50		
67	3.03	2115	95.79	2.55 -	2.65	167	9.41	1329	74.92		
40	1.81	2155	97.60	2.65 -	2.75	132	7.44	1461	82.36		
29	1.31	2184	98.91	2.75 -	2.85	104	5.86	1565	88.22		
15	.68	2199	99.59	2.85 -	2.95	83	4.88	1648	92.90		
5	.23	2204	99.82	2.95 -	3.05	58	3.27	1706	96.17		
1	.05	2205	99.86	3.05 -	3.15	22	1.24	1728	97.41		
3	.14	2208	100.00	3.15 -	3.25	17	.96	1745	98.37		
				3.25 -	3.35	13	.73	1758	99.10		
				3.35 -	3.45	7	.39	1765	99.49		
				3.45 -	3.55	5	.28	1770	99.77		
				3.55 -	3.65	0	.00	1770	99.77		
				3.65 -	3.75	2	.11	1772	99.89		
				3.75 -	3.85	1	.06	1773	99.94		
				3.85 -	3.95	0	.00	1773	99.94		
				3.95 -	4.05	1	.06	1774	100.00		

## (47) ELBOW CIRCUMFERENCE

The circumference of the right elbow in a plane perpendicular to the long axis of the arm is measured with a tape passing around the elbow at the level of the olecranon-center landmark. The subject stands with the arm straight and slightly away from the side.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
20.96	8.25	1ST	24.28	9.56
21.27	8.37	2ND	24.71	9.73
21.47	8.45	3RD	24.96	9.83
21.75	8.56	5TH	25.30	9.96
22.18	8.73	10TH	25.81	10.16
22.47	8.85	15TH	26.16	10.30
22.71	8.94	20TH	26.43	10.40
22.91	9.02	25TH	26.66	10.50
23.10	9.09	30TH	26.88	10.58
23.27	9.16	35TH	27.08	10.66
23.44	9.23	40TH	27.27	10.74
23.60	9.29	45TH	27.46	10.81
23.76	9.35	50TH	27.65	10.88
23.92	9.42	55TH	27.84	10.96
24.09	9.49	60TH	28.03	11.04
24.27	9.55	65TH	28.24	11.12
24.46	9.63	70TH	28.46	11.20
24.67	9.71	75TH	28.70	11.30
24.91	9.81	80TH	28.97	11.41
25.19	9.92	85TH	29.29	11.53
25.57	10.07	90TH	29.70	11.69
26.17	10.30	95TH	30.32	11.94
26.58	10.46	97TH	30.72	12.09
26.90	10.59	98TH	31.01	12.21
27.43	10.80	99TH	31.46	12.39

# ELBOW CIRCUMFERENCE

FEMALES			
CM		INCHES	
23.83	MEAN VALUE	9.38	
.03	SE(MEAN)	.00	
1.34	STD DEVIATION	.53	
.02	SE(STD DEV)	.00	
20.10	MINIMUM	7.91	
29.20	MAXIMUM	11.50	
SYMMETRY---VETA I = .36			
KURTOSIS---VETA II = 3.41			
COEF. OF VARIATION = 5.6%			
NUMBER OF SUBJECTS = 2208			

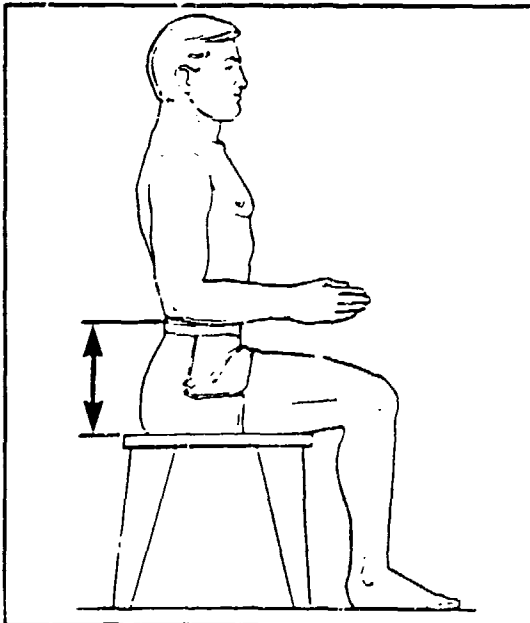
MALES			
CM		INCHES	
27.71	MEAN VALUE	10.91	
.04	SE(MEAN)	.00	
1.53	STD DEVIATION	.60	
.03	SE(STD DEV)	.00	
21.90	MINIMUM	8.62	
33.90	MAXIMUM	13.35	
SYMMETRY---VETA I = .18			
KURTOSIS---VETA II = 3.37			
COEF. OF VARIATION = 5.5%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE									
FEMALES					MALES				
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>	F	FPct	CumF	CumFPct	
3	.14	3	.14	19.75 - 20.25					
11	.50	14	.63	20.25 - 20.75					
26	1.18	40	1.81	20.75 - 21.25					
79	3.58	119	5.39	21.25 - 21.75					
131	5.93	250	11.32	21.75 - 22.25	1	.06	1	.06	
201	9.10	451	20.43	22.25 - 22.75	1	.06	2	.11	
277	12.55	728	32.97	22.75 - 23.25	3	.17	5	.28	
372	16.85	1100	49.82	23.25 - 23.75	4	.23	9	.51	
335	15.17	1435	64.99	23.75 - 24.25	4	.23	13	.73	
267	12.09	1702	77.08	24.25 - 24.75	28	1.58	41	2.31	
213	9.65	1915	86.73	24.75 - 25.25	30	1.69	71	4.00	
117	5.30	2032	92.03	25.25 - 25.75	91	5.13	162	9.13	
78	3.53	2110	95.56	25.75 - 26.25	122	6.88	284	16.01	
36	1.63	2146	97.19	26.25 - 26.75	198	11.16	482	27.17	
36	1.63	2182	98.82	26.75 - 27.25	223	12.57	705	39.74	
14	.63	2196	99.46	27.25 - 27.75	232	13.08	937	52.82	
7	.32	2203	99.77	27.75 - 28.25	226	12.74	1163	65.56	
1	.05	2204	99.82	28.25 - 28.75	179	10.03	1341	75.59	
4	.18	2208	100.00	28.75 - 29.25	161	9.08	1502	84.67	
				29.25 - 29.75	114	6.43	1616	91.09	
				29.75 - 30.25	62	3.49	1678	94.59	
				30.25 - 30.75	41	2.31	1719	96.90	
				30.75 - 31.25	33	1.86	1752	98.76	
				31.25 - 31.75	10	.56	1762	99.32	
				31.75 - 32.25	6	.34	1768	99.66	
				32.25 - 32.75	2	.11	1770	99.77	
				32.75 - 33.25	2	.11	1772	99.89	
				33.25 - 33.75	1	.06	1773	99.94	
				33.75 - 34.25	1	.06	1774	100.00	



## (48) ELBOW REST HEIGHT

The vertical distance between a sitting surface and the olecranon landmark on the bottom of the flexed right elbow is measured with an anthropometer. The subject sits erect looking straight ahead. The shoulders and upper arms are relaxed and the forearms and hands are extended forward horizontally with the palms facing each other. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
15.80	6.22	1ST	16.75	6.60
16.49	6.49	2ND	17.35	6.83
16.94	6.67	3RD	17.78	7.00
17.57	6.92	5TH	18.41	7.25
18.56	7.31	10TH	19.44	7.65
19.24	7.57	15TH	20.17	7.94
19.77	7.78	20TH	20.74	8.17
20.24	7.97	25TH	21.24	8.36
20.65	8.13	30TH	21.69	8.54
21.03	8.28	35TH	22.09	8.70
21.39	8.42	40TH	22.47	8.85
21.74	8.56	45TH	22.83	8.99
22.08	8.69	50TH	23.19	9.13
22.42	8.83	55TH	23.53	9.27
22.77	8.96	60TH	23.88	9.40
23.12	9.10	65TH	24.23	9.54
23.49	9.25	70TH	24.59	9.68
23.89	9.41	75TH	24.98	9.83
24.33	9.58	80TH	25.40	10.00
24.84	9.78	85TH	25.88	10.19
25.49	10.03	90TH	26.48	10.43
26.44	10.41	95TH	27.37	10.78
27.06	10.65	97TH	27.96	11.01
27.52	10.83	98TH	28.41	11.19
28.24	11.12	99TH	29.16	11.48

# ELBOW REST HEIGHT

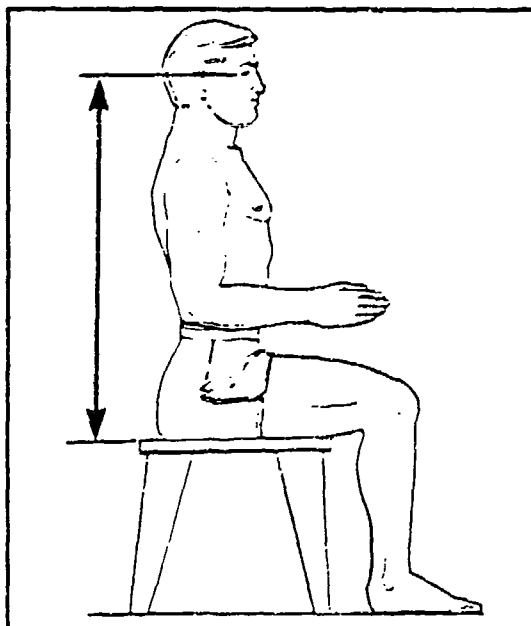
FEMALES			
CM		INCHES	
22.05	MEAN VALUE	8.68	
.06	SE(MEAN)	.02	
2.68	STD DEVIATION	1.05	
.04	SE(STD DEV)	.02	
12.40	MINIMUM	4.88	
30.20	MAXIMUM	11.89	
SYMMETRY---VETA I = -.04			
KURTOSIS---VETA II = 2.88			
COEF. OF VARIATION = 12.1%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
23.06	MEAN VALUE	9.08	
.06	SE(MEAN)	.03	
2.72	STD DEVIATION	1.07	
.05	SE(STD DEV)	.02	
14.00	MINIMUM	5.51	
31.10	MAXIMUM	12.24	
SYMMETRY---VETA I = -.15			
KURTOSIS---VETA II = 2.82			
COEF. OF VARIATION = 11.8%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	12.25 -	12.75						
0	.00	1	.05	12.75 -	13.25						
1	.05	2	.09	13.25 -	13.75						
0	.00	2	.09	13.75 -	14.25						
7	.32	9	.41	14.25 -	14.75	1	.06	1	.06		
3	.14	12	.54	14.75 -	15.25	1	.06	2	.11		
9	.41	21	.95	15.25 -	15.75	1	.06	3	.17		
14	.63	35	1.59	15.75 -	16.25	3	.17	6	.34		
21	.95	56	2.54	16.25 -	16.75	8	.45	14	.79		
26	1.18	82	3.71	16.75 -	17.25	4	.23	18	1.01		
40	1.81	122	5.53	17.25 -	17.75	14	.79	32	1.80		
47	2.13	169	7.65	17.75 -	18.25	17	.96	49	2.76		
73	3.31	242	10.96	18.25 -	18.75	23	1.30	72	4.06		
83	3.76	325	14.72	18.75 -	19.25	41	2.31	113	6.37		
120	5.43	445	20.15	19.25 -	19.75	46	2.59	159	8.96		
118	5.34	563	25.50	19.75 -	20.25	70	3.95	229	12.91		
137	6.20	700	31.70	20.25 -	20.75	53	2.99	282	15.90		
153	5.93	853	38.63	20.75 -	21.25	74	4.17	356	20.07		
144	6.52	997	45.15	21.25 -	21.75	90	5.07	446	25.14		
154	6.97	1151	52.13	21.75 -	22.25	99	5.58	545	30.72		
147	6.66	1298	58.79	22.25 -	22.75	101	5.69	646	36.41		
178	8.06	1476	66.85	22.75 -	23.25	136	7.67	782	44.08		
146	6.61	1622	73.46	23.25 -	23.75	125	7.05	907	51.13		
138	6.25	1760	79.71	23.75 -	24.25	119	6.71	1026	57.84		
87	3.94	1847	83.65	24.25 -	24.75	122	6.88	1148	64.71		
98	4.44	1945	88.09	24.75 -	25.25	129	7.27	1277	71.98		
81	3.67	2026	91.76	25.25 -	25.75	118	6.65	1395	78.64		
58	2.63	2084	94.38	25.75 -	26.25	92	5.19	1487	83.82		
38	1.72	2122	96.11	26.25 -	26.75	86	4.85	1573	88.67		
33	1.49	2155	97.60	26.75 -	27.25	59	3.33	1632	92.00		
24	1.09	2179	98.69	27.25 -	27.75	51	2.97	1683	94.87		
6	.27	2185	98.96	27.75 -	28.25	28	1.58	1711	96.45		
9	.41	2194	99.37	28.25 -	28.75	20	1.13	1731	97.58		
9	.41	2203	99.77	28.75 -	29.25	15	.85	1746	98.42		
3	.14	2206	99.91	29.25 -	29.75	14	.79	1760	99.21		
2	.09	2208	100.00	29.75 -	30.25	9	.51	1769	99.72		
				30.25 -	30.75	1	.06	1770	99.77		
				30.75 -	31.25	2	.11	1772	99.89		
						2	.11	1774	100.00		

## (49) EYE HEIGHT, SITTING

The vertical distance between a sitting surface and the ectocanthus landmark on the outer corner of the right eye is measured with an anthropometer. The subject sits erect with the head in the Frankfort plane. The shoulders and upper arms are relaxed and the forearms and hands are extended forward horizontally with the palms facing each other. The thighs are parallel and the knees are flexed 90 degrees with the feet in line with the thighs. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
66.40	26.14	1ST	71.18	28.02
67.21	26.46	2ND	72.11	28.39
67.74	26.67	3RD	72.70	28.62
68.46	26.95	5TH	73.50	28.94
69.60	27.40	10TH	74.76	29.43
70.38	27.71	15TH	75.61	29.77
71.01	27.96	20TH	76.29	30.04
71.56	28.17	25TH	76.88	30.27
72.06	28.37	30TH	77.40	30.47
72.52	28.55	35TH	77.88	30.66
72.96	28.72	40TH	78.34	30.84
73.39	28.89	45TH	78.79	31.02
73.82	29.06	50TH	79.23	31.19
74.25	29.23	55TH	79.66	31.36
74.68	29.40	60TH	80.10	31.54
75.13	29.58	65TH	80.56	31.72
75.61	29.77	70TH	81.04	31.90
76.13	29.97	75TH	81.55	32.11
76.71	30.20	80TH	82.13	32.33
77.37	30.46	85TH	82.78	32.59
78.21	30.79	90TH	83.61	32.92
79.43	31.27	95TH	84.80	33.39
80.20	31.57	97TH	85.56	33.68
80.75	31.79	98TH	86.10	33.90
81.59	32.12	99TH	86.93	34.23

# EYE HEIGHT, SITTING

## FEMALES

CM		INCHES
73.87	MEAN VALUE	29.08
.07	SE(MEAN)	.03
3.32	STD DEVIATION	1.31
.05	SE(STD DEV)	.02
64.00	MINIMUM	25.20
86.40	MAXIMUM	34.02
SYMMETRY---VETA I		= .10
KURTOSIS---VETA II		= 2.87
COEF. OF VARIATION		= 4.5%
NUMBER OF SUBJECTS		= 2208

## MALES

CM		INCHES
79.20	MEAN VALUE	31.18
.08	SE(MEAN)	.03
3.42	STD DEVIATION	1.35
.06	SE(STD DEV)	.02
67.30	MINIMUM	26.50
90.30	MAXIMUM	35.55
SYMMETRY---VETA I		= -.04
KURTOSIS---VETA II		= 2.92
COEF. OF VARIATION		= 4.3%
NUMBER OF SUBJECTS		= 1774

## FREQUENCY TABLE

### FEMALES

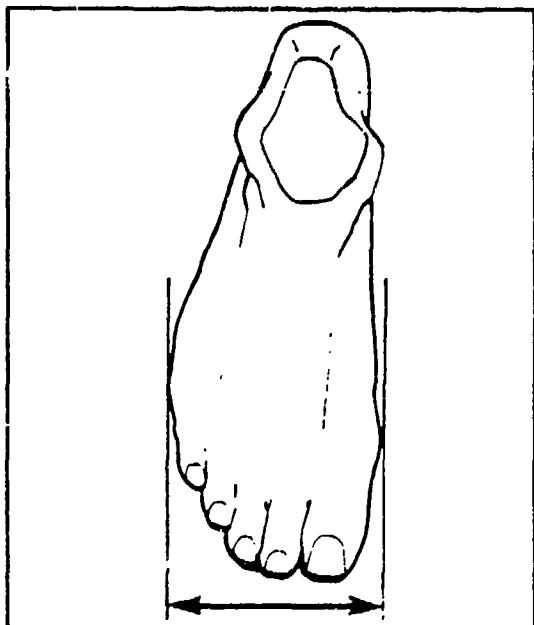
F	FPct	CumF	CumFPct
1	.05	1	.05
2	.09	3	.14
4	.18	7	.32
6	.27	13	.59
4	.18	17	.77
13	.59	30	1.36
18	.82	48	2.17
23	1.04	71	3.22
22	1.00	93	4.21
30	1.36	123	5.57
59	2.67	182	8.24
48	2.17	230	10.42
63	2.85	293	13.27
88	3.99	381	17.26
98	4.44	479	21.69
118	5.34	597	27.04
122	5.53	719	32.56
119	5.39	838	37.95
138	6.25	976	44.20
130	5.89	1106	50.09
121	5.48	1227	55.57
115	5.21	1342	60.78
112	5.07	1454	65.85
116	5.25	1570	71.11
102	4.62	1672	75.72
83	3.76	1755	79.48
91	4.12	1846	83.61
84	3.80	1930	87.41
61	2.76	1991	90.17
56	2.54	2047	92.71
38	1.72	2085	94.43
38	1.72	2123	96.15
25	1.13	2148	97.28
21	.95	2169	98.23
8	.36	2177	98.60
10	.45	2187	99.05
8	.36	2195	99.41
5	.23	2200	99.64
3	.14	2203	99.77
0	.00	2203	99.77
2	.09	2205	99.86
1	.05	2206	99.91
0	.00	2206	99.91
1	.05	2207	99.95
0	.00	2207	99.95
1	.05	2208	100.00

### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
1	.06	2	.11
0	.00	2	.11
1	.06	3	.17
2	.11	5	.28
2	.11	7	.39
8	.45	15	.85
3	.17	18	1.01
11	.62	29	1.63
12	.68	41	2.31
14	.79	55	3.10
16	.90	71	4.00
23	1.30	94	5.30
25	1.41	119	6.71
51	2.87	170	9.58
67	3.78	237	13.36
65	3.66	302	17.02
53	2.99	355	20.01
70	3.95	425	23.96
77	4.34	502	28.30
78	4.40	580	32.69
111	6.26	691	38.95
102	5.75	793	44.70
106	5.98	899	50.68
97	5.47	996	56.14
83	4.68	1079	60.82
101	5.69	1180	66.52
103	5.81	1283	72.32
92	5.19	1375	77.51
71	4.00	1446	81.51
49	2.76	1495	84.27
70	3.95	1565	88.22
50	2.82	1615	91.04
37	2.09	1652	93.12
29	1.63	1681	94.76
29	1.63	1710	96.39
21	1.18	1731	97.58
9	.51	1740	98.08
14	.79	1754	98.87
7	.39	1761	99.27
6	.34	1767	99.61
2	.11	1769	99.72
1	.06	1770	99.77
1	.06	1771	99.83
0	.00	1771	99.83
2	.11	1773	99.94
1	.06	1774	100.00

## (50) FOOT BREADTH, HORIZONTAL

The maximum breadth of the right foot is measured on a footbox scale. The subject stands with each foot in a footbox and the weight distributed equally on both feet. The heel of the right foot lightly touches the back of the box, and the side of the foot at the fifth-metatarsophalangeal-protrusion landmark lightly touches the side of the box. The medial side of the foot is parallel to the long axis of the box. A block is placed against the landmark at the first metatarsophalangeal protrusion to establish the measurement on the scale.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
7.87	3.10	1ST	8.90	3.51	
7.98	3.14	2ND	9.03	3.56	
8.06	3.17	3RD	9.11	3.59	
8.16	3.21	5TH	9.23	3.63	
8.34	3.28	10TH	9.41	3.70	
8.46	3.33	15TH	9.53	3.75	
8.55	3.37	20TH	9.62	3.79	
8.63	3.40	25TH	9.71	3.82	
8.71	3.43	30TH	9.78	3.85	
8.78	3.46	35TH	9.85	3.88	
8.84	3.48	40TH	9.92	3.90	
8.90	3.50	45TH	9.98	3.93	
8.96	3.53	50TH	10.05	3.96	
9.02	3.55	55TH	10.11	3.98	
9.08	3.58	60TH	10.18	4.01	
9.15	3.60	65TH	10.25	4.03	
9.21	3.63	70TH	10.32	4.06	
9.29	3.66	75TH	10.40	4.09	
9.37	3.69	80TH	10.49	4.13	
9.46	3.73	85TH	10.60	4.17	
9.59	3.77	90TH	10.74	4.23	
9.78	3.85	95TH	10.95	4.31	
9.91	3.90	97TH	11.10	4.37	
10.02	3.94	98TH	11.21	4.41	
10.20	4.02	99TH	11.40	4.49	

# FOOT BREADTH, HORIZONTAL

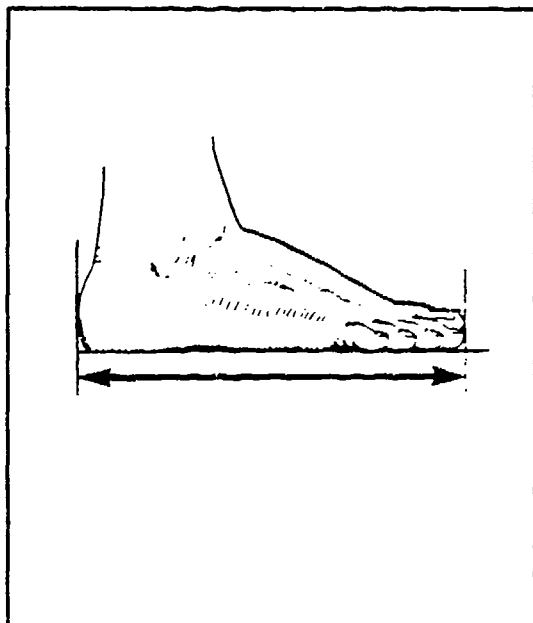
FEMALES		
<u>CM</u>		<u>INCHES</u>
8.97	MEAN VALUE	3.53
.00	SE (MEAN)	.00
.49	STD DEVIATION	.19
.00	SE (STD DEV)	.00
7.30	MINIMUM	2.87
10.90	MAXIMUM	4.29
SYMMETRY---VETA I = .13		
KURTOSIS---VETA II = 3.18		
COEF. OF VARIATION = 5.5%		
NUMBER OF SUBJECTS = 2208		

MALES		
<u>CM</u>		<u>INCHES</u>
10.06	MEAN VALUE	3.96
.00	SE (MEAN)	.00
.53	STD DEVIATION	.21
.00	SE (STD DEV)	.00
8.00	MINIMUM	3.15
12.20	MAXIMUM	4.80
SYMMETRY---VETA I = .21		
KURTOSIS---VETA II = 3.36		
COEF. OF VARIATION = 5.2%		
NUMBER OF SUBJECTS = 1774		

FREQUENCY TABLE									
FEMALES					MALES				
F	FPct	CumF	CumFPct	CENTIMETERS	F	FPct	CumF	CumFPct	
1	.05	1	.05	7.25 - 7.35					
2	.09	3	.14	7.35 - 7.45					
1	.05	4	.18	7.45 - 7.55					
3	.14	7	.32	7.55 - 7.65					
5	.23	12	.54	7.65 - 7.75					
7	.32	19	.86	7.75 - 7.85					
19	.86	38	1.72	7.85 - 7.95					
28	1.27	66	2.99	7.95 - 8.05	1	.06	1	.06	
26	1.18	92	4.17	8.05 - 8.15	0	.00	1	.06	
54	2.45	146	6.61	8.15 - 8.25	0	.00	1	.06	
73	3.31	219	9.92	8.25 - 8.35	0	.00	1	.06	
95	4.30	314	14.22	8.35 - 8.45	0	.00	1	.06	
156	7.07	470	21.29	8.45 - 8.55	1	.06	2	.11	
105	4.76	575	26.04	8.55 - 8.65	2	.11	4	.23	
159	7.20	734	33.24	8.65 - 8.75	3	.17	7	.39	
171	7.74	905	40.99	8.75 - 8.85	5	.28	12	.68	
174	7.88	1079	48.87	8.85 - 8.95	11	.62	23	1.30	
210	9.51	1289	58.38	8.95 - 9.05	15	.85	38	2.14	
139	6.30	1428	64.67	9.05 - 9.15	20	1.13	58	3.27	
166	7.52	1594	72.19	9.15 - 9.25	49	2.76	107	6.03	
139	6.30	1733	78.49	9.25 - 9.35	40	2.25	147	8.29	
114	5.16	1847	83.65	9.35 - 9.45	54	3.04	201	11.33	
125	5.66	1972	89.31	9.45 - 9.55	87	4.90	288	16.23	
39	1.77	2011	91.08	9.55 - 9.65	88	4.96	376	21.20	
69	3.13	2080	94.20	9.65 - 9.75	119	6.71	495	27.90	
57	2.58	2137	96.78	9.75 - 9.85	115	6.48	610	34.39	
14	.63	2151	97.42	9.85 - 9.95	134	7.55	744	41.94	
23	1.04	2174	98.46	9.95 - 10.05	155	8.74	899	50.68	
9	.41	2183	98.87	10.05 - 10.15	128	7.22	1027	57.89	
4	.18	2187	99.05	10.15 - 10.25	138	7.79	1165	65.67	
8	.36	2195	99.41	10.25 - 10.35	113	6.37	1278	72.04	
5	.23	2200	99.64	10.35 - 10.45	93	5.24	1371	77.28	
4	.18	2204	99.82	10.45 - 10.55	113	6.37	1484	83.65	
2	.09	2206	99.91	10.55 - 10.65	82	4.62	1566	88.28	
1	.05	2207	99.95	10.65 - 10.75	37	2.09	1603	90.36	
0	.00	2207	99.95	10.75 - 10.85	42	2.37	1645	92.73	
1	.05	2208	100.00	10.85 - 10.95	32	1.80	1677	94.53	
				10.95 - 11.05	39	2.20	1716	96.73	
				11.05 - 11.15	15	.85	1731	97.58	
				11.15 - 11.25	10	.56	1741	98.14	
				11.25 - 11.35	14	.79	1755	98.93	
				11.35 - 11.45	3	.17	1758	99.10	
				11.45 - 11.55	8	.45	1766	99.55	
				11.55 - 11.65	1	.06	1767	99.61	
				11.65 - 11.75	1	.06	1768	99.66	
				11.75 - 11.85	2	.11	1770	99.77	
				11.85 - 11.95	2	.11	1772	99.89	
				11.95 - 12.05	1	.06	1773	99.94	
				12.05 - 12.15	0	.00	1773	99.94	
				12.15 - 12.25	1	.06	1774	100.00	

## (51) FOOT LENGTH

The maximum length of the right foot is measured on a footbox scale. The subject stands with each foot in a footbox and the weight distributed equally on both feet. The heel of the right foot lightly touches the back of the box, and the side of the foot at the fifth-metatarsophalangeal-protrusion landmark lightly touches the side of the box. The medial side of the foot is parallel to the long axis of the box. A block is placed against the tip of the longest toe to establish the measurement on the scale.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
21.69	8.54	1ST	23.99	9.44
21.98	8.66	2ND	24.35	9.59
22.17	8.73	3RD	24.58	9.68
22.44	8.83	5TH	24.88	9.79
22.86	9.00	10TH	25.33	9.97
23.15	9.12	15TH	25.63	10.09
23.39	9.21	20TH	25.87	10.19
23.60	9.29	25TH	26.08	10.27
23.78	9.36	30TH	26.27	10.34
23.95	9.43	35TH	26.44	10.41
24.12	9.50	40TH	26.60	10.47
24.28	9.56	45TH	26.77	10.54
24.43	9.62	50TH	26.93	10.60
24.59	9.68	55TH	27.09	10.67
24.75	9.75	60TH	27.26	10.73
24.92	9.81	65TH	27.43	10.80
25.09	9.88	70TH	27.62	10.87
25.28	9.95	75TH	27.82	10.95
25.49	10.03	80TH	28.05	11.04
25.73	10.13	85TH	28.32	11.15
26.03	10.25	90TH	28.67	11.29
26.46	10.42	95TH	29.20	11.50
26.73	10.52	97TH	29.55	11.63
26.92	10.60	98TH	29.81	11.73
27.22	10.72	99TH	30.21	11.90

# FOOT LENGTH

## FEMALES

CM		INCHES
24.44	MEAN VALUE	9.62
.03	SE (MEAN)	.00
1.22	STD DEVIATION	.48
.02	SE (STD DEV)	.00
20.30	MINIMUM	7.99
29.00	MAXIMUM	11.42

SYMMETRY---VETA I = .03  
 KURTOSIS---VETA II = 2.89  
 COEF. OF VARIATION = 5.0%  
 NUMBER OF SUBJECTS = 2208

## MALES

CM		INCHES
26.97	MEAN VALUE	10.62
.03	SE (MEAN)	.00
1.31	STD DEVIATION	.52
.02	SE (STD DEV)	.00
22.80	MINIMUM	8.98
31.00	MAXIMUM	12.20

SYMMETRY---VETA I = .15  
 KURTOSIS---VETA II = 3.03  
 COEF. OF VARIATION = 4.9%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
1	.05	1	.05
0	.00	1	.05
1	.05	2	.09
1	.05	3	.14
5	.23	8	.36
3	.14	11	.50
5	.23	16	.72
7	.32	23	1.04
23	1.04	46	2.08
16	.72	62	2.81
32	1.45	94	4.26
41	1.86	135	6.11
43	1.95	178	8.06
60	2.72	238	10.78
84	3.80	322	14.58
96	4.35	418	18.93
111	5.03	529	23.96
107	4.85	636	28.80
149	6.75	785	35.55
118	5.34	903	40.90
145	6.57	1048	47.46
135	6.11	1183	53.58
139	6.30	1322	59.87
143	6.48	1465	66.35
117	5.30	1582	71.65
99	4.48	1681	76.13
120	5.43	1801	81.57
95	4.30	1896	85.87
69	3.13	1965	88.99
57	2.58	2022	91.58
54	2.45	2076	94.02
39	1.77	2115	95.79
28	1.27	2143	97.06
24	1.09	2167	98.14
17	.77	2184	98.91
6	.27	2190	99.18
6	.27	2196	99.46
6	.27	2202	99.73
2	.09	2204	99.82
1	.05	2205	99.86
2	.09	2207	99.95
0	.00	2207	99.95
0	.00	2207	99.95
0	.00	2207	99.95
1	.05	2208	100.00

### CENTIMETERS

20.15 - 20.35
20.35 - 20.55
20.55 - 20.75
20.75 - 20.95
20.95 - 21.15
21.15 - 21.35
21.35 - 21.55
21.55 - 21.75
21.75 - 21.95
21.95 - 22.15
22.15 - 22.35
22.35 - 22.55
22.55 - 22.75
22.75 - 22.95
22.95 - 23.15
23.15 - 23.35
23.35 - 23.55
23.55 - 23.75
23.75 - 23.95
23.95 - 24.15
24.15 - 24.35
24.35 - 24.55
24.55 - 24.75
24.75 - 24.95
24.95 - 25.15
25.15 - 25.35
25.35 - 25.55
25.55 - 25.75
25.75 - 25.95
25.95 - 26.15
26.15 - 26.35
26.35 - 26.55
26.55 - 26.75
26.75 - 26.95
26.95 - 27.15
27.15 - 27.35
27.35 - 27.55
27.55 - 27.75
27.75 - 27.95
27.95 - 28.15
28.15 - 28.35
28.35 - 28.55
28.55 - 28.75
28.75 - 28.95
28.95 - 29.15
29.15 - 29.35
29.35 - 29.55
29.55 - 29.75
29.75 - 29.95
29.95 - 30.15
30.15 - 30.35
30.35 - 30.55
30.55 - 30.75
30.75 - 30.95
30.95 - 31.15

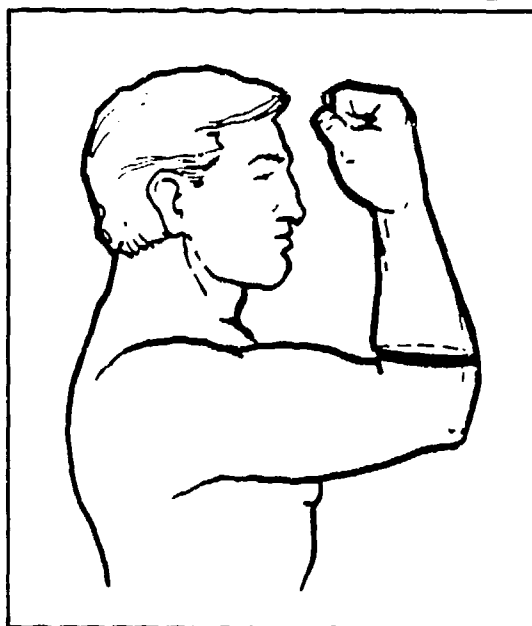
### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
0	.00	1	.06
1	.06	2	.11
3	.17	5	.28
5	.28	10	.56
5	.28	15	.85
14	.79	29	1.63
7	.39	36	2.03
14	.79	50	2.82
19	1.07	69	3.89
24	1.35	93	5.24
39	2.20	132	7.44
60	3.38	192	10.82
49	2.76	241	13.59
72	4.06	313	17.64
69	3.89	382	21.53
86	4.85	468	26.38
104	5.86	572	32.24
115	6.48	687	38.73
105	5.92	792	44.64
105	5.92	897	50.56
105	5.92	1002	56.48
118	6.65	1120	63.13
85	4.79	1205	67.93
92	5.19	1297	73.11
80	4.51	1377	77.62
86	4.85	1463	82.47
63	3.55	1526	86.02
37	2.09	1563	88.11
53	2.99	1616	91.09
36	2.03	1652	93.12
30	1.69	1682	94.81
19	1.07	1701	95.89
17	.96	1718	96.84
19	1.07	1737	97.91
7	.39	1744	98.31
11	.62	1755	98.93
4	.23	1759	99.15
7	.39	1766	99.55
1	.06	1767	99.61
3	.17	1770	99.77
4	.23	1774	100.00



## (52) FOREARM CIRCUMFERENCE, FLEXED

The circumference of the flexed right forearm is measured with a tape passing across the crease at the juncture between the upper arm and the forearm. The measurement is made in a plane perpendicular to the long axis of the forearm. The subject stands with the upper arm extended forward horizontally, the elbow flexed 90 degrees, and the fist tightly clenched and held facing the head.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
21.99	8.66	1ST	26.29	10.35	
22.40	8.82	2ND	26.78	10.54	
22.65	8.92	3RD	27.08	10.66	
22.99	9.05	5TH	27.47	10.81	
23.51	9.26	10TH	28.06	11.05	
23.85	9.39	15TH	28.45	11.20	
24.13	9.50	20TH	28.77	11.33	
24.36	9.59	25TH	29.05	11.44	
24.57	9.67	30TH	29.31	11.54	
24.77	9.75	35TH	29.55	11.63	
24.95	9.82	40TH	29.78	11.72	
25.13	9.89	45TH	30.01	11.82	
25.31	9.97	50TH	30.24	11.91	
25.50	10.04	55TH	30.48	12.00	
25.68	10.11	60TH	30.72	12.10	
25.87	10.19	65TH	30.98	12.20	
26.08	10.27	70TH	31.25	12.30	
26.31	10.36	75TH	31.56	12.42	
26.57	10.46	80TH	31.90	12.56	
26.88	10.58	85TH	32.31	12.72	
27.29	10.75	90TH	32.83	12.93	
27.94	11.00	95TH	33.61	13.23	
28.38	11.17	97TH	34.11	13.43	
28.73	11.31	98TH	34.47	13.57	
29.30	11.54	99TH	35.02	13.79	

# FOREARM CIRCUMFERENCE, FLEXED

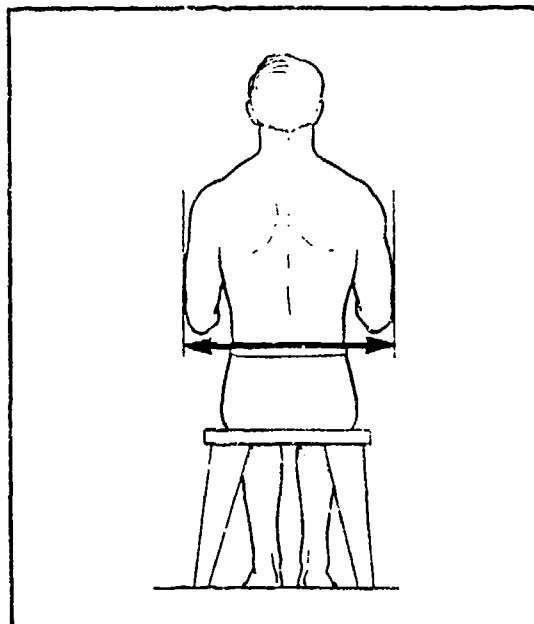
FEMALES			
CM		INCHES	
25.37	MEAN VALUE	9.99	
.03	SE(MEAN)	.00	
1.51	STD DEVIATION	.59	
.02	SE(STD DEV)	.00	
21.00	MINIMUM	8.27	
32.50	MAXIMUM	12.80	
SYMMETRY---VETA I = .30			
KURTOSIS---VETA II = 3.54			
COEF. OF VARIATION = 5.9%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
30.35	MEAN VALUE	11.95	
.04	SE(MEAN)	.02	
1.88	STD DEVIATION	.74	
.03	SE(STD DEV)	.00	
23.30	MINIMUM	9.17	
37.20	MAXIMUM	14.65	
SYMMETRY---VETA I = .24			
KURTOSIS---VETA II = 3.29			
COEF. OF VARIATION = 6.2%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES				CENTIMETERS				MALES			
F	FPct	CumF	CumFPct					F	FPct	CumF	CumFPct
5	.23	5	.23	20.75 -	21.25			2	.11	2	.11
8	.36	13	.59	21.25 -	21.75			0	.00	2	.11
25	1.13	38	1.72	21.75 -	22.25			3	.17	5	.28
34	1.54	72	3.26	22.25 -	22.75			0	.00	5	.28
79	3.58	151	6.84	22.75 -	23.25			2	.11	7	.39
142	6.43	293	13.27	23.25 -	23.75			8	.45	15	.85
205	9.28	498	22.55	23.75 -	24.25			19	1.07	34	1.92
263	11.91	761	34.47	24.25 -	24.75			31	1.75	65	3.66
299	13.54	1060	48.01	24.75 -	25.25			60	3.38	125	7.05
301	13.63	1361	61.64	25.25 -	25.75			57	4.90	212	11.95
263	11.91	1624	73.55	25.75 -	26.25			136	7.67	348	19.62
211	9.56	1835	83.11	26.25 -	26.75			171	9.64	519	29.26
141	6.39	1976	89.49	26.75 -	27.25			185	10.43	704	39.68
101	4.57	2077	94.07	27.25 -	27.75			204	11.50	908	51.18
65	2.94	2142	97.01	27.75 -	28.25			165	9.30	1073	60.48
22	1.00	2164	98.01	28.25 -	28.75			169	9.53	1242	70.01
21	.95	2185	98.96	28.75 -	29.25			126	7.10	1368	77.11
10	.45	2195	99.41	29.25 -	29.75			150	8.46	1518	85.57
7	.32	2202	99.73	29.75 -	30.25			70	3.95	1588	89.52
1	.05	2203	99.77	30.25 -	30.75			69	3.89	1657	93.40
3	.14	2206	99.91	30.75 -	31.25			39	2.20	1696	95.60
1	.05	2207	99.95	31.25 -	31.75			33	1.86	1729	97.46
0	.00	2207	99.95	31.75 -	32.25			19	1.07	1748	98.53
1	.05	2208	100.00	32.25 -	32.75			12	.68	1760	99.21
				32.75 -	33.25			6	.34	1766	99.55
				33.25 -	33.75			3	.17	1769	99.72
				33.75 -	34.25			2	.11	1771	99.83
				34.25 -	34.75			3	.17	1774	100.00
				34.75 -	35.25						
				35.25 -	35.75						
				35.75 -	36.25						
				36.25 -	36.75						
				36.75 -	37.25						

## (53) FOREARM-FOREARM BREADTH

The maximum horizontal distance across the upper body between the outer sides of the forearms is measured with a beam caliper. The subject sits erect looking straight ahead. The shoulders and upper arms are relaxed and the forearms and hands are extended forward horizontally with the palms facing each other. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
39.42	15.52	1ST	45.12	17.76	
40.24	15.84	2ND	46.17	18.18	
40.76	16.05	3RD	46.84	18.44	
41.47	16.33	5TH	47.74	18.80	
42.58	16.76	10TH	49.16	19.35	
43.33	17.06	15TH	50.13	19.74	
43.94	17.30	20TH	50.91	20.04	
44.47	17.51	25TH	51.59	20.31	
44.94	17.69	30TH	52.21	20.56	
45.39	17.87	35TH	52.79	20.79	
45.82	18.04	40TH	53.35	21.00	
46.24	18.20	45TH	53.90	21.22	
46.66	18.37	50TH	54.45	21.44	
47.08	18.54	55TH	55.00	21.65	
47.52	18.71	60TH	55.56	21.88	
47.98	18.89	65TH	56.16	22.11	
48.47	19.08	70TH	56.79	22.36	
49.01	19.30	75TH	57.47	22.63	
49.63	19.54	80TH	58.25	22.93	
50.37	19.83	85TH	59.16	23.29	
51.33	20.21	90TH	60.32	23.75	
52.84	20.80	95TH	62.06	24.43	
53.87	21.21	97TH	63.18	24.87	
54.66	21.52	98TH	64.00	25.20	
55.95	22.03	99TH	65.27	25.70	

# FOREARM-FOREARM BREADTH

## FEMALES

CM		INCHES
46.85	MEAN VALUE	18.44
.07	SE (MEAN)	.03
3.47	STD DEVIATION	1.36
.05	SE (STD DEV)	.02
37.30	MINIMUM	14.69
60.90	MAXIMUM	23.98

SYMMETRY---VETA I	=	.34
KURTOSIS---VETA II	=	3.26
COEF. OF VARIATION	=	7.4%
NUMBER OF SUBJECTS	=	2208

## MALES

CM		INCHES
54.61	MEAN VALUE	21.50
.10	SE (MEAN)	.04
4.36	STD DEVIATION	1.72
.07	SE (STD DEV)	.03
39.90	MINIMUM	15.71
72.50	MAXIMUM	28.54

SYMMETRY---VETA I	=	.20
KURTOSIS---VETA II	=	3.13
COEF. OF VARIATION	=	8.0%
NUMBER OF SUBJECTS	=	1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
1	.05	1	.05
5	.23	6	.27
19	.86	25	1.13
27	1.22	52	2.36
72	3.26	124	5.62
109	4.94	233	10.55
126	5.71	359	16.26
201	9.10	560	25.36
251	11.37	811	36.73
277	12.55	1088	49.28
260	11.78	1348	61.05
208	9.42	1556	70.47
188	8.51	1744	78.99
147	6.66	1891	85.64
114	5.16	2005	90.81
79	3.58	2084	94.38
47	2.13	2131	96.51
33	1.49	2164	98.01
15	.68	2179	98.69
11	.50	2190	99.18
12	.54	2202	99.73
1	.05	2203	99.77
2	.09	2205	99.86
1	.05	2206	99.91
2	.09	2208	100.00

### CENTIMETERS

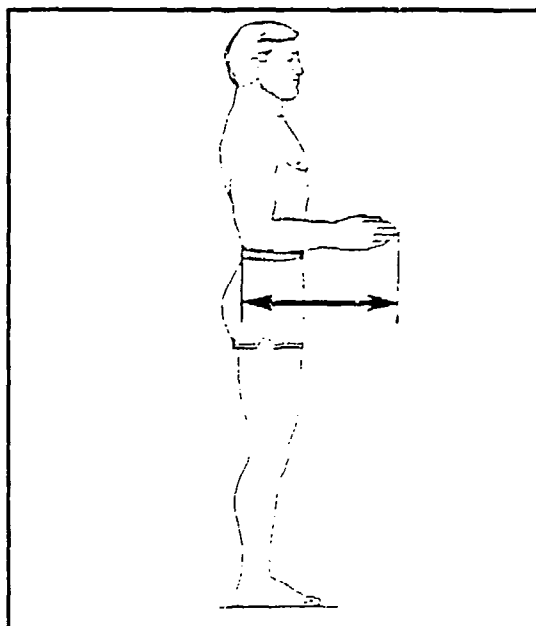
36.55 - 37.55
37.55 - 38.55
38.55 - 39.55
39.55 - 40.55
40.55 - 41.55
41.55 - 42.55
42.55 - 43.55
43.55 - 44.55
44.55 - 45.55
45.55 - 46.55
46.55 - 47.55
47.55 - 48.55
48.55 - 49.55
49.55 - 50.55
50.55 - 51.55
51.55 - 52.55
52.55 - 53.55
53.55 - 54.55
54.55 - 55.55
55.55 - 56.55
56.55 - 57.55
57.55 - 58.55
58.55 - 59.55
59.55 - 60.55
60.55 - 61.55
61.55 - 62.55
62.55 - 63.55
63.55 - 64.55
64.55 - 65.55
65.55 - 66.55
66.55 - 67.55
67.55 - 68.55
68.55 - 69.55
69.55 - 70.55
70.55 - 71.55
71.55 - 72.55

### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
1	.06	2	.11
0	.00	2	.11
3	.17	5	.28
7	.39	12	.68
14	.79	26	1.47
17	.96	43	2.42
35	1.97	78	4.40
65	3.66	143	8.06
71	4.00	214	12.06
102	5.75	316	17.81
124	6.99	440	24.80
151	8.51	591	33.31
136	7.67	727	40.98
177	9.98	904	50.96
154	8.68	1058	59.64
144	8.12	1202	67.76
156	8.79	1358	76.55
102	5.75	1460	82.30
84	4.74	1544	87.03
74	4.17	1618	91.21
46	2.59	1664	93.80
37	2.09	1701	95.89
30	1.69	1731	97.58
17	.96	1748	98.53
13	.73	1761	99.27
5	.28	1766	99.55
4	.23	1770	99.77
1	.06	1771	99.83
1	.06	1772	99.89
0	.00	1772	99.89
0	.00	1772	99.89
2	.11	1774	100.00

## (54) FOREARM-HAND LENGTH

The horizontal distance between the back of the tip of the right elbow to the tip of the right middle finger is measured with a beam caliper. The subject stands erect with the upper arms hanging at the sides and the right elbow flexed 90 degrees. The hand is held out straight with the palm facing inward.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
39.14	15.41	1ST	43.43	17.10
39.74	15.65	2ND	43.98	17.31
40.12	15.79	3RD	44.32	17.45
40.62	15.99	5TH	44.79	17.63
41.38	16.29	10TH	45.52	17.92
41.91	16.50	15TH	46.02	18.12
42.32	16.66	20TH	46.42	18.28
42.69	16.81	25TH	46.78	18.42
43.02	16.94	30TH	47.10	18.54
43.33	17.06	35TH	47.41	18.66
43.63	17.18	40TH	47.70	18.78
43.92	17.29	45TH	47.99	18.89
44.21	17.41	50TH	48.28	19.01
44.51	17.52	55TH	48.58	19.12
44.81	17.64	60TH	48.88	19.24
45.13	17.77	65TH	49.20	19.37
45.47	17.90	70TH	49.53	19.50
45.84	18.05	75TH	49.91	19.65
46.26	18.21	80TH	50.33	19.82
46.74	18.40	85TH	50.83	20.01
47.35	18.64	90TH	51.46	20.26
48.25	18.99	95TH	52.42	20.64
48.81	19.22	97TH	53.04	20.88
49.21	19.38	98TH	53.49	21.06
49.81	19.61	99TH	54.20	21.34

# FOREARM-HAND LENGTH

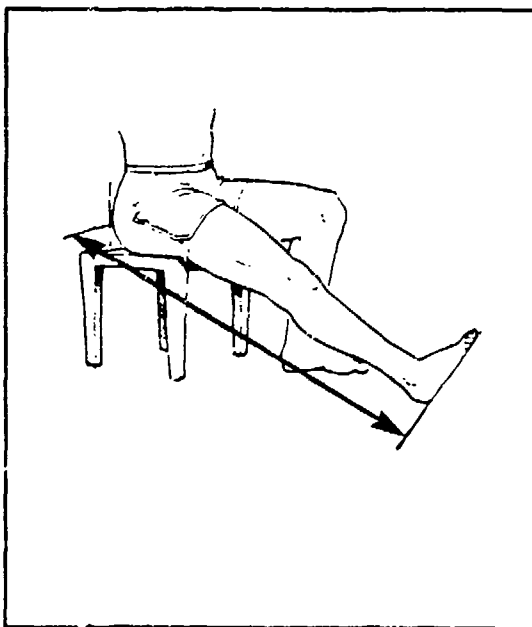
FEMALES			
<u>CM</u>		<u>INCHES</u>	
44.29	MEAN VALUE	17.44	
.05	SE (MEAN)	.02	
2.34	STD DEVIATION	.92	
.04	SE (STD DEV)	.00	
32.40	MINIMUM	12.76	
54.60	MAXIMUM	21.50	
SYMMETRY---VETA I = .11			
KURTOSIS---VETA II = 3.29			
COEF. OF VARIATION = 5.3%			
NUMBER OF SUBJECTS = 2208			

MALES			
<u>CM</u>		<u>INCHES</u>	
48.40	MEAN VALUE	19.06	
.05	SE (MEAN)	.02	
2.33	STD DEVIATION	.92	
.04	SE (STD DEV)	.02	
38.60	MINIMUM	15.20	
57.80	MAXIMUM	22.76	
SYMMETRY---VETA I = .23			
KURTOSIS---VETA II = 3.43			
COEF. OF VARIATION = 4.8%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct	CumF	CumFPct		
1	.05	1	.05	32.25 -	32.75						
0	.00	1	.05	32.75 -	33.25						
0	.00	1	.05	33.25 -	33.75						
0	.00	1	.05	33.75 -	34.25						
0	.00	1	.05	34.25 -	34.75						
0	.00	1	.05	34.75 -	35.25						
0	.00	1	.05	35.25 -	35.75						
0	.00	1	.05	35.75 -	36.25						
0	.00	1	.05	36.25 -	36.75						
0	.00	1	.05	36.75 -	37.25						
2	.09	3	.14	37.25 -	37.75						
4	.18	7	.32	37.75 -	38.25						
10	.45	17	.77	38.25 -	38.75	1	.06	1	.06		
10	.45	27	1.22	38.75 -	39.25	0	.00	1	.06		
11	.50	38	1.72	39.25 -	39.75	1	.06	2	.11		
28	1.27	66	2.99	39.75 -	40.25	0	.00	2	.11		
61	2.76	127	5.75	40.25 -	40.75	1	.06	3	.17		
76	3.44	203	9.19	40.75 -	41.25	1	.06	4	.23		
98	4.44	301	13.63	41.25 -	41.75	2	.11	6	.34		
142	6.43	443	20.06	41.75 -	42.25	0	.00	6	.34		
144	6.52	587	26.59	42.25 -	42.75	0	.00	6	.34		
154	6.97	741	33.56	42.75 -	43.25	7	.39	13	.73		
184	8.33	925	41.89	43.25 -	43.75	12	.68	25	1.41		
174	7.88	1099	49.77	43.75 -	44.25	26	1.47	51	2.87		
198	8.97	1297	58.74	44.25 -	44.75	32	1.80	83	4.68		
170	7.70	1467	66.44	44.75 -	45.25	53	2.99	136	7.67		
162	7.34	1629	73.78	45.25 -	45.75	74	4.17	210	11.84		
139	6.30	1768	80.07	45.75 -	46.25	91	5.13	301	16.97		
107	4.85	1875	84.92	46.25 -	46.75	125	7.05	426	24.01		
103	4.66	1978	89.58	46.75 -	47.25	170	9.58	596	33.60		
77	3.43	2055	93.07	47.25 -	47.75	137	7.72	733	41.32		
43	1.95	2098	95.02	47.75 -	48.25	144	8.12	877	49.44		
48	2.17	2146	97.19	48.25 -	48.75	155	8.74	1032	58.17		
17	.77	2163	97.96	48.75 -	49.25	129	7.27	1161	65.45		
21	.95	2184	98.91	49.25 -	49.75	135	7.61	1296	73.06		
11	.50	2195	99.41	49.75 -	50.25	104	5.86	1400	78.92		
5	.23	2200	99.64	50.25 -	50.75	87	4.90	1487	83.82		
3	.14	2203	99.77	50.75 -	51.25	87	4.90	1574	88.73		
1	.05	2204	99.82	51.25 -	51.75	60	3.38	1634	92.11		
2	.09	2206	99.91	51.75 -	52.25	45	2.54	1679	94.64		
0	.00	2206	99.91	52.25 -	52.75	25	1.41	1704	96.05		
0	.00	2206	99.91	52.75 -	53.25	28	1.58	1732	97.63		
1	.05	2207	99.95	53.25 -	53.75	14	.79	1746	98.42		
0	.00	2207	99.95	53.75 -	54.25	11	.62	1757	99.04		
1	.05	2208	100.00	54.25 -	54.75	3	.17	1760	99.21		
				54.75 -	55.25	7	.39	1767	99.61		
				55.25 -	55.75	2	.11	1769	99.72		
				55.75 -	56.25	1	.06	1770	99.77		
				56.25 -	56.75	2	.11	1772	99.89		
				56.75 -	57.25	0	.00	1772	99.89		
				57.25 -	57.75	1	.06	1773	99.94		
				57.75 -	58.25	1	.06	1774	100.00		

## (55) FUNCTIONAL LEG LENGTH

The straight-line distance between the plane of the bottom of the right foot with the leg extended and the back of the body of a seated subject is measured with an anthropometer passing over the trochanter landmark on the side of the hip. The subject sits erect on a stool 40.8 cm high. The right leg is extended and the foot is on the base plate of the anthropometer, which rests on the floor. The measurement is made from the footrest surface of the base plate.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
89.76	35.34	1ST	96.90	38.15
91.20	35.91	2ND	98.26	38.69
92.09	36.25	3RD	99.09	39.01
93.25	36.71	5TH	100.19	39.44
94.99	37.40	10TH	101.85	40.10
96.15	37.86	15TH	102.98	40.54
97.07	38.21	20TH	103.88	40.90
97.86	38.53	25TH	104.67	41.21
98.57	38.81	30TH	105.39	41.49
99.22	39.06	35TH	106.06	41.76
99.85	39.31	40TH	106.71	42.01
100.47	39.55	45TH	107.35	42.26
101.08	39.79	50TH	107.99	42.52
101.70	40.04	55TH	108.64	42.77
102.32	40.28	60TH	109.30	43.03
102.98	40.54	65TH	110.00	43.31
103.67	40.82	70TH	110.75	43.60
104.43	41.12	75TH	111.56	43.92
105.29	41.45	80TH	112.48	44.28
106.28	41.84	85TH	113.55	44.71
107.55	42.34	90TH	114.91	45.24
109.42	43.08	95TH	116.89	46.02
110.62	43.55	97TH	118.14	46.51
111.49	43.89	98TH	119.02	46.86
112.82	44.42	99TH	120.33	47.38

# FUNCTIONAL LEG LENGTH

FEMALES			
CM		INCHES	
101.20	MEAN VALUE	39.84	
.10	SE (MEAN)	.04	
4.91	STD DEVIATION	1.93	
.07	SE (STD DEV)	.03	
81.90	MINIMUM	32.24	
118.00	MAXIMUM	46.46	
SYMMETRY---VETA I = .06			
KURTOSIS---VETA II = 3.10			
COEF. OF VARIATION = 4.9%			
NUMBER OF SUBJECTS = 2208			

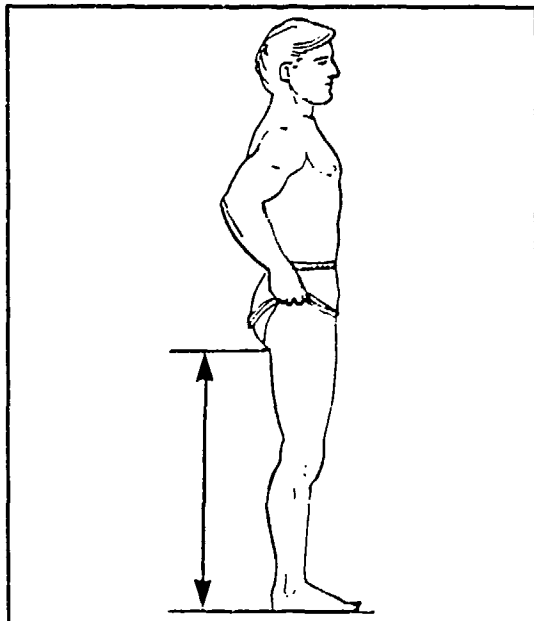
MALES			
CM		INCHES	
108.21	MEAN VALUE	42.60	
.12	SE (MEAN)	.05	
5.10	STD DEVIATION	2.01	
.09	SE (STD DEV)	.03	
88.10	MINIMUM	34.69	
129.10	MAXIMUM	50.83	
SYMMETRY---VETA I = .17			
KURTOSIS---VETA II = 3.22			
COEF. OF VARIATION = 4.7%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE									
FEMALES				MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct
1	.05	1	.05	81.55	- 82.55				
0	.00	1	.05	82.55	- 83.55				
1	.05	2	.09	83.55	- 84.55				
0	.00	2	.09	84.55	- 85.55				
1	.05	3	.14	85.55	- 86.55				
2	.09	5	.23	86.55	- 87.55				
6	.27	11	.50	87.55	- 88.55	1	.06	1	.06
5	.23	16	.72	88.55	- 89.55	0	.00	1	.06
14	.63	30	1.36	89.55	- 90.55	0	.00	1	.06
16	.72	46	2.08	90.55	- 91.55	0	.00	1	.06
30	1.36	76	3.44	91.55	- 92.55	0	.00	1	.06
48	2.17	124	5.62	92.55	- 93.55	3	.17	4	.23
75	3.40	199	9.01	93.55	- 94.55	2	.11	6	.34
77	3.49	276	12.50	94.55	- 95.55	2	.11	8	.45
110	4.98	386	17.48	95.55	- 96.55	6	.34	14	.79
117	5.30	503	22.78	96.55	- 97.55	12	.68	26	1.47
145	6.57	648	29.35	97.55	- 98.55	17	.96	43	2.42
155	7.02	803	36.37	98.55	- 99.55	24	1.35	67	3.78
146	6.61	949	42.98	99.55	- 100.55	31	1.75	98	5.52
258	11.68	1207	54.66	100.55	- 101.55	58	3.27	156	8.79
166	7.52	1374	62.18	101.55	- 102.55	66	3.72	222	12.51
155	7.02	1528	69.20	102.55	- 103.55	81	4.57	303	17.08
153	6.93	1681	76.13	103.55	- 104.55	123	6.93	426	24.01
125	5.66	1806	81.79	104.55	- 105.55	132	7.44	558	31.45
96	4.35	1902	86.14	105.55	- 106.55	119	6.71	677	38.16
80	3.62	1982	89.76	106.55	- 107.55	146	8.23	823	46.39
61	2.76	2043	92.53	107.55	- 108.55	136	7.67	959	54.06
56	2.54	2099	95.06	108.55	- 109.55	150	8.46	1109	62.51
41	1.86	2140	96.92	109.55	- 110.55	106	5.98	1215	68.49
21	.95	2161	97.87	110.55	- 111.55	128	7.22	1343	75.70
22	1.00	2183	98.87	111.55	- 112.55	76	4.28	1419	79.99
10	.45	2193	99.32	112.55	- 113.55	80	4.51	1499	84.50
3	.14	2196	99.46	113.55	- 114.55	76	4.28	1575	88.78
7	.32	2203	99.77	114.55	- 115.55	57	3.21	1632	92.00
1	.05	2204	99.82	115.55	- 116.55	37	2.09	1669	94.08
3	.14	2207	99.95	116.55	- 117.55	41	2.31	1710	96.39
1	.05	2208	100.00	117.55	- 118.55	22	1.24	1732	97.63
				118.55	- 119.55	16	.90	1748	98.53
				119.55	- 120.55	9	.51	1757	99.04
				120.55	- 121.55	5	.28	1762	99.32
				121.55	- 122.55	3	.17	1765	99.49
				122.55	- 123.55	4	.23	1769	99.72
				123.55	- 124.55	1	.06	1770	99.77
				124.55	- 125.55	2	.11	1772	99.89
				125.55	- 126.55	0	.00	1772	99.89
				126.55	- 127.55	0	.00	1772	99.89
				127.55	- 128.55	1	.06	1773	99.94
				128.55	- 129.55	1	.06	1774	100.00



## (56) GLUTEAL FURROW HEIGHT

The vertical distance between a standing surface and the lowest point of the gluteal furrow(s) under the right buttock is measured with an anthropometer. The subject stands erect with the heels together and the weight distributed equally on both feet.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
64.79	25.51	1ST	71.32	28.08	
65.89	25.94	2ND	72.54	28.56	
66.59	26.22	3RD	73.29	28.85	
67.54	26.59	5TH	74.26	29.24	
69.01	27.17	10TH	75.75	29.82	
70.01	27.56	15TH	76.75	30.22	
70.81	27.88	20TH	77.55	30.53	
71.50	28.15	25TH	78.26	30.81	
72.12	28.39	30TH	78.90	31.06	
72.70	28.62	35TH	79.51	31.30	
73.25	28.84	40TH	80.09	31.53	
73.79	29.05	45TH	80.66	31.76	
74.33	29.26	50TH	81.24	31.98	
74.87	29.48	55TH	81.82	32.21	
75.42	29.69	60TH	82.42	32.45	
75.99	29.92	65TH	83.05	32.70	
76.60	30.16	70TH	83.72	32.96	
77.27	30.42	75TH	84.46	33.25	
78.02	30.72	80TH	85.28	33.58	
78.90	31.06	85TH	86.24	33.95	
80.03	31.51	90TH	87.46	34.43	
81.74	32.18	95TH	89.21	35.12	
82.87	32.62	97TH	90.30	35.55	
83.71	32.96	98TH	91.06	35.85	
85.04	33.48	99TH	92.16	36.28	

# GLUTEAL FURROW HEIGHT

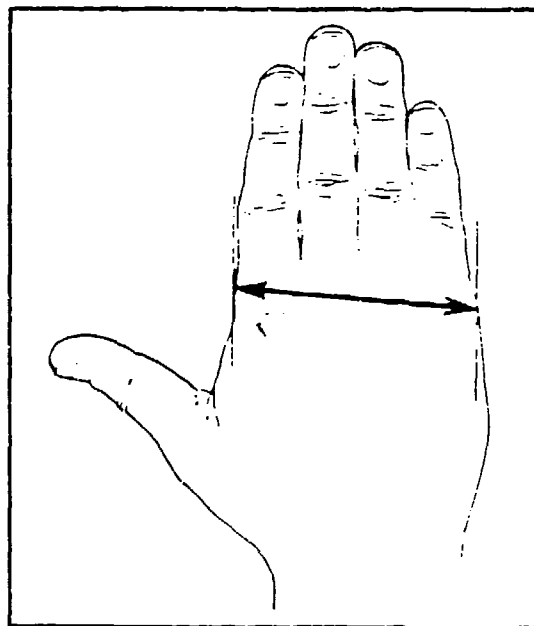
FEMALES			
CM		INCHES	
74.43	MEAN VALUE	29.30	
.09	SE(MEAN)	.04	
4.30	STD DEVIATION	1.69	
.06	SE(STD DEV)	.03	
56.80	MINIMUM	22.36	
91.60	MAXIMUM	36.06	
SYMMETRY---VETA I = .13			
KURTOSIS---VETA II = 3.10			
COEF. OF VARIATION = 5.8%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
81.44	MEAN VALUE	32.06	
.11	SE(MEAN)	.04	
4.56	STD DEVIATION	1.80	
.08	SE(STD DEV)	.03	
64.90	MINIMUM	25.55	
102.50	MAXIMUM	40.35	
SYMMETRY---VETA I = .21			
KURTOSIS---VETA II = 3.20			
COEF. OF VARIATION = 5.6%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	56.55	- 57.55						
0	.00	1	.05	57.55	- 58.55						
0	.00	1	.05	58.55	- 59.55						
0	.00	1	.05	59.55	- 60.55						
0	.00	1	.05	60.55	- 61.55						
2	.09	3	.14	61.55	- 62.55						
6	.27	9	.41	62.55	- 63.55						
8	.36	17	.77	63.55	- 64.55						
18	.82	35	1.59	64.55	- 65.55	1	.06	1	.06		
27	1.22	62	2.81	65.55	- 66.55	0	.00	1	.06		
43	1.95	105	4.76	66.55	- 67.55	1	.06	2	.11		
75	3.40	180	8.15	67.55	- 68.55	1	.06	3	.17		
99	4.48	279	12.64	68.55	- 69.55	1	.06	4	.23		
129	5.84	408	18.48	69.55	- 70.55	7	.39	11	.62		
164	7.43	572	25.91	70.55	- 71.55	8	.45	19	1.07		
167	7.56	739	33.47	71.55	- 72.55	19	1.07	38	2.14		
203	9.19	942	42.66	72.55	- 73.55	19	1.07	57	3.21		
210	9.51	1152	52.17	73.55	- 74.55	39	2.20	96	5.41		
209	9.47	1361	61.64	74.55	- 75.55	63	3.55	159	8.96		
180	8.15	1541	69.79	75.55	- 76.55	83	4.68	242	13.64		
158	7.16	1699	76.95	76.55	- 77.55	117	6.60	359	20.24		
148	6.70	1847	83.65	77.55	- 78.55	125	7.05	484	27.28		
96	4.35	1943	88.00	78.55	- 79.55	141	7.95	625	35.23		
88	3.99	2031	91.98	79.55	- 80.55	151	8.51	776	43.74		
62	2.81	2093	94.79	80.55	- 81.55	166	9.36	942	53.10		
37	1.68	2130	96.47	81.55	- 82.55	138	7.78	1080	60.88		
32	1.45	2162	97.92	82.55	- 83.55	147	8.29	1227	69.17		
15	.68	2177	98.60	83.55	- 84.55	111	6.26	1338	75.42		
19	.86	2196	99.46	84.55	- 85.55	106	5.98	1444	81.40		
5	.23	2201	99.68	85.55	- 86.55	72	4.06	1516	85.46		
5	.23	2206	99.91	86.55	- 87.55	94	5.30	1610	90.76		
0	.00	2206	99.91	87.55	- 88.55	51	2.87	1661	93.63		
1	.05	2207	99.95	88.55	- 89.55	36	2.03	1697	95.66		
0	.00	2207	99.95	89.55	- 90.55	29	1.63	1726	97.29		
0	.00	2207	99.95	90.55	- 91.55	22	1.24	1748	98.53		
1	.05	2208	100.00	91.55	- 92.55	13	.73	1761	99.27		
				92.55	- 93.55	4	.23	1765	99.49		
				93.55	- 94.55	3	.17	1768	99.66		
				94.55	- 95.55	2	.11	1770	99.77		
				95.55	- 96.55	2	.11	1772	99.89		
				96.55	- 97.55	0	.00	1772	99.89		
				97.55	- 98.55	0	.00	1772	99.89		
				98.55	- 99.55	0	.00	1772	99.89		
				99.55	- 100.55	1	.06	1773	99.94		
				100.55	- 101.55	0	.00	1773	99.94		
				101.55	- 102.55	1	.06	1774	100.00		

## (57) HAND BREADTH

The breadth of the right hand between the landmarks at metacarpale II and metacarpale V is measured with a sliding caliper. The subject places the palm on a table, the fingers together and the thumb abducted. The middle finger is parallel to the long axis of the forearm. The two distal phalanges of the fingers lie on a flat surface 8 mm higher than the table.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
7.09	2.79	1ST	8.07	3.18	
7.19	2.83	2ND	8.19	3.22	
7.25	2.86	3RD	8.27	3.25	
7.34	2.89	5TH	8.36	3.29	
7.47	2.94	10TH	8.51	3.35	
7.56	2.98	15TH	8.61	3.39	
7.63	3.00	20TH	8.69	3.42	
7.69	3.03	25TH	8.75	3.45	
7.74	3.05	30TH	8.82	3.47	
7.79	3.07	35TH	8.87	3.49	
7.84	3.09	40TH	8.93	3.51	
7.89	3.11	45TH	8.98	3.54	
7.93	3.12	50TH	9.03	3.56	
7.98	3.14	55TH	9.09	3.58	
8.03	3.16	60TH	9.14	3.60	
8.08	3.18	65TH	9.20	3.62	
8.13	3.20	70TH	9.26	3.64	
8.18	3.22	75TH	9.32	3.67	
8.25	3.25	80TH	9.40	3.70	
8.32	3.28	85TH	9.48	3.73	
8.42	3.31	90TH	9.59	3.78	
8.56	3.37	95TH	9.76	3.84	
8.66	3.41	97TH	9.86	3.88	
8.74	3.44	98TH	9.93	3.91	
8.86	3.49	99TH	10.04	3.95	

# HAND BREADTH

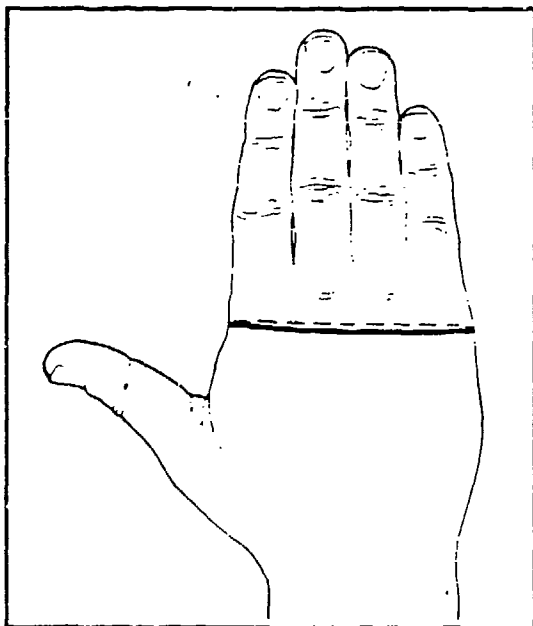
FEMALES		
CM		INCHES
7.94	MEAN VALUE	3.13
.00	SE(MEAN)	.00
.38	STD DEVIATION	.15
.00	SE(STD DEV)	.00
6.60	MINIMUM	2.60
9.80	MAXIMUM	3.86
SYMMETRY---VETA I = .16		
KURTOSIS---VETA II = 3.49		
COEF. OF VARIATION = 4.7%		
NUMBER OF SUBJECTS = 2208		

MALES		
CM		INCHES
9.04	MEAN VALUE	3.56
.00	SE(MEAN)	.00
.42	STD DEVIATION	.17
.00	SE(STD DEV)	.00
7.70	MINIMUM	3.03
10.60	MAXIMUM	4.17
SYMMETRY---VETA I = .09		
KURTOSIS---VETA II = 3.00		
COEF. OF VARIATION = 4.7%		
NUMBER OF SUBJECTS = 1774		

FREQUENCY TABLE									
FEMALES					MALES				
F	FPct	CumF	CumFPct	CENTIMETERS	F	FPct	CumF	CumFPct	
2	.09	2	.09	6.55 - 6.65					
1	.05	3	.14	6.65 - 6.75					
1	.05	4	.18	6.75 - 6.85					
4	.18	8	.36	6.85 - 6.95					
11	.50	19	.86	6.95 - 7.05					
11	.50	30	1.36	7.05 - 7.15					
28	1.27	58	2.63	7.15 - 7.25					
61	2.76	119	5.39	7.25 - 7.35					
65	2.94	184	8.33	7.35 - 7.45					
126	5.71	310	14.04	7.45 - 7.55					
173	7.84	483	21.88	7.55 - 7.65					
211	9.56	694	31.43	7.65 - 7.75					
227	10.28	921	41.71	7.75 - 7.85					
217	9.83	1138	51.54	7.85 - 7.95	1	.06	1	.06	
227	10.28	1365	61.82	7.95 - 8.05	3	.17	4	.23	
194	8.79	1559	70.61	8.05 - 8.15	2	.11	6	.34	
209	9.47	1768	80.07	8.15 - 8.25	8	.45	14	.79	
168	7.61	1936	87.68	8.25 - 8.35	15	.85	29	1.63	
79	3.58	2015	91.26	8.35 - 8.45	19	1.07	48	2.71	
75	3.40	2090	94.66	8.45 - 8.55	34	1.92	82	4.62	
51	2.31	2141	96.97	8.55 - 8.65	50	2.82	132	7.44	
31	1.40	2172	98.37	8.65 - 8.75	81	4.57	213	12.01	
12	.54	2184	98.91	8.75 - 8.85	89	5.02	302	17.02	
10	.45	2194	99.37	8.85 - 8.95	135	7.61	437	24.63	
7	.32	2201	99.68	8.95 - 9.05	144	8.12	581	32.75	
3	.14	2204	99.82	9.05 - 9.15	155	8.74	736	41.49	
0	.00	2204	99.82	9.15 - 9.25	183	10.32	919	51.80	
1	.05	2205	99.86	9.25 - 9.35	165	9.30	1084	61.10	
1	.05	2206	99.91	9.35 - 9.45	162	9.13	1246	70.24	
0	.00	2206	99.91	9.45 - 9.55	121	6.82	1367	77.06	
1	.05	2207	99.95	9.55 - 9.65	104	5.86	1471	82.92	
0	.00	2207	99.95	9.65 - 9.75	97	5.47	1568	88.39	
1	.05	2208	100.00	9.75 - 9.85	57	3.21	1625	91.60	
				9.85 - 9.95	64	3.61	1689	95.21	
				10.05 - 10.15	30	1.69	1719	96.90	
				10.15 - 10.25	20	1.13	1739	98.03	
				10.25 - 10.35	21	1.18	1760	99.21	
				10.35 - 10.45	7	.39	1767	99.61	
				10.45 - 10.55	3	.17	1770	99.77	
				10.55 - 10.65	1	.06	1771	99.83	
							1773	99.94	
							1773	99.94	
							1774	100.00	

## (58) HAND CIRCUMFERENCE

The circumference of the right hand is measured with a tape passing over the landmarks at metacarpale II and metacarpale V. The subject places the palm on a table, the fingers together, and the thumb abducted. The middle finger is parallel to the long axis of the forearm. The two distal phalanges of the fingers lie on a flat surface 8 mm higher than the table.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
16.73	6.59	1ST	19.16	7.54
16.93	6.67	2ND	19.45	7.66
17.07	6.72	3RD	19.62	7.72
17.25	6.79	5TH	19.85	7.81
17.55	6.91	10TH	20.18	7.94
17.75	6.99	15TH	20.40	8.03
17.91	7.05	20TH	20.57	8.10
18.04	7.10	25TH	20.72	8.16
18.17	7.15	30TH	20.86	8.21
18.28	7.20	35TH	20.98	8.26
18.39	7.24	40TH	21.11	8.31
18.50	7.28	45TH	21.22	8.36
18.60	7.32	50TH	21.34	8.40
18.70	7.36	55TH	21.46	8.45
18.81	7.41	60TH	21.59	8.50
18.92	7.45	65TH	21.72	8.55
19.04	7.49	70TH	21.86	8.61
19.16	7.54	75TH	22.01	8.67
19.30	7.60	80TH	22.18	8.73
19.47	7.67	85TH	22.38	8.81
19.69	7.75	90TH	22.64	8.92
20.03	7.88	95TH	23.03	9.07
20.25	7.97	97TH	23.28	9.17
20.43	8.04	98TH	23.46	9.24
20.72	8.16	99TH	23.74	9.35

# HAND CIRCUMFERENCE

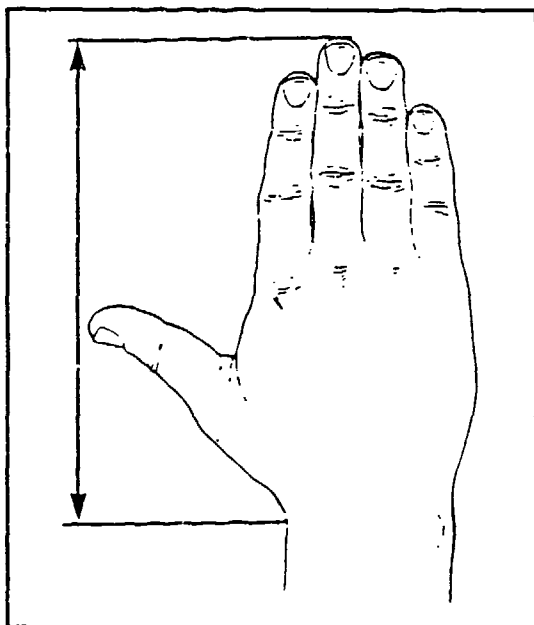
FEMALES			
<u>CM</u>		<u>INCHES</u>	
18.62	MEAN VALUE	7.33	
.02	SE (MEAN)	.00	
.85	STD DEVIATION	.33	
.00	SE (STD DEV)	.00	
15.80	MINIMUM	6.22	
23.00	MAXIMUM	9.06	
SYMMETRY---VETA I = .20			
KURTOSIS---VETA II = 3.46			
COEF. OF VARIATION = 4.5%			
NUMBER OF SUBJECTS = 2208			

MALES			
<u>CM</u>		<u>INCHES</u>	
21.38	MEAN VALUE	8.42	
.02	SE (MEAN)	.00	
.97	STD DEVIATION	.38	
.02	SE (STD DEV)	.00	
18.20	MINIMUM	7.17	
24.70	MAXIMUM	9.72	
SYMMETRY---VETA I = .14			
KURTOSIS---VETA II = 3.12			
COEF. OF VARIATION = 4.5%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct	CumF	CumFPct		
2	.09	2	.09	15.75 -	15.95						
1	.05	3	.14	15.95 -	16.15						
4	.18	7	.32	16.15 -	16.35						
6	.27	13	.59	16.35 -	16.55						
11	.50	24	1.09	16.55 -	16.75						
21	.95	45	2.04	16.75 -	16.95						
35	1.59	80	3.62	16.95 -	17.15						
53	2.40	133	6.02	17.15 -	17.35						
72	3.26	205	9.28	17.35 -	17.55						
119	5.39	324	14.67	17.55 -	17.75						
173	7.84	497	22.51	17.75 -	17.95						
164	7.43	661	29.94	17.95 -	18.15						
195	8.83	856	38.77	18.15 -	18.35						
196	8.88	1052	47.64	18.35 -	18.55	1	.06	1	.06		
202	9.15	1254	56.79	18.55 -	18.75	3	.17	4	.23		
210	9.51	1464	66.30	18.75 -	18.95	2	.11	6	.34		
159	7.20	1623	73.51	18.95 -	19.15	5	.28	11	.62		
171	7.74	1794	81.25	19.15 -	19.35	6	.34	17	.96		
127	5.75	1921	87.00	19.35 -	19.55	12	.68	29	1.63		
106	4.80	2027	91.80	19.55 -	19.75	14	.79	43	2.42		
57	2.58	2084	94.38	19.75 -	19.95	29	1.63	72	4.06		
45	2.04	2129	96.42	19.95 -	20.15	29	1.63	101	5.69		
28	1.27	2157	97.69	20.15 -	20.35	69	3.89	170	9.58		
22	1.00	2179	98.69	20.35 -	20.55	80	4.51	250	14.09		
7	.32	2186	99.00	20.55 -	20.75	96	5.41	346	19.50		
7	.32	2193	99.32	20.75 -	20.95	120	6.76	466	26.27		
8	.36	2201	99.68	20.95 -	21.15	106	5.98	572	32.24		
1	.05	2202	99.73	21.15 -	21.35	159	8.96	731	41.21		
2	.09	2204	99.82	21.35 -	21.55	171	9.75	904	50.96		
1	.05	2205	99.86	21.55 -	21.75	146	8.23	1050	59.19		
2	.09	2207	99.95	21.75 -	21.95	141	7.95	1191	67.14		
0	.00	2207	99.95	21.95 -	22.15	106	5.98	1297	73.11		
0	.00	2207	99.95	22.15 -	22.35	96	5.41	1393	78.52		
0	.00	2207	99.95	22.35 -	22.55	94	5.30	1487	83.82		
0	.00	2207	99.95	22.55 -	22.75	82	4.62	1569	88.44		
0	.00	2207	99.95	22.75 -	22.95	57	3.21	1626	91.66		
1	.05	2208	100.00	22.95 -	23.15	48	2.71	1674	94.36		
				23.15 -	23.35	27	1.52	1701	95.89		
				23.35 -	23.55	31	1.75	1732	97.63		
				23.55 -	23.75	15	.85	1747	98.48		
				23.75 -	23.95	9	.51	1756	98.99		
				23.95 -	24.15	7	.39	1763	99.38		
				24.15 -	24.35	5	.28	1768	99.66		
				24.35 -	24.55	3	.17	1771	99.83		
				24.55 -	24.75	1	.06	1772	99.89		
						2	.11	1774	100.00		

## (59) HAND LENGTH

The length of the right hand between the stylium landmark on the wrist and the tip of the middle finger is measured with a Poech sliding caliper. The subject places the palm on a table, the fingers together, and the thumb abducted. The middle finger is parallel to the long axis of the forearm. The two distal phalanges of the fingers lie on a flat surface 8 mm higher than the table.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
15.89	6.26	1ST	17.28	6.80
16.13	6.35	2ND	17.52	6.90
16.29	6.41	3RD	17.67	6.96
16.50	6.50	5TH	17.87	7.04
16.83	6.63	10TH	18.18	7.16
17.06	6.72	15TH	18.39	7.24
17.24	6.79	20TH	18.56	7.31
17.39	6.85	25TH	18.71	7.37
17.53	6.90	30TH	18.85	7.42
17.66	6.95	35TH	18.97	7.47
17.78	7.00	40TH	19.09	7.52
17.90	7.05	45TH	19.21	7.56
18.02	7.09	50TH	19.33	7.61
18.14	7.14	55TH	19.45	7.66
18.26	7.19	60TH	19.57	7.70
18.39	7.24	65TH	19.70	7.75
18.52	7.29	70TH	19.84	7.81
18.67	7.35	75TH	19.99	7.87
18.84	7.42	80TH	20.16	7.94
19.04	7.49	85TH	20.37	8.02
19.29	7.60	90TH	20.64	8.13
19.69	7.75	95TH	21.06	8.29
19.96	7.86	97TH	21.34	8.40
20.16	7.94	98TH	21.55	8.49
20.50	8.07	99TH	21.90	8.62

# HAND LENGTH

FEMALES			
CM		INCHES	
18.05	MEAN VALUE	7.10	
.02	SE (MEAN)	.00	
.97	STD DEVIATION	.38	
.00	SE (STD DEV)	.00	
14.90	MINIMUM	5.87	
21.50	MAXIMUM	8.46	
SYMMETRY---VETA I = .16			
KURTOSIS---VETA II = 3.20			
COEF. OF VARIATION = 5.4%			
NUMBER OF SUBJECTS = 2208			

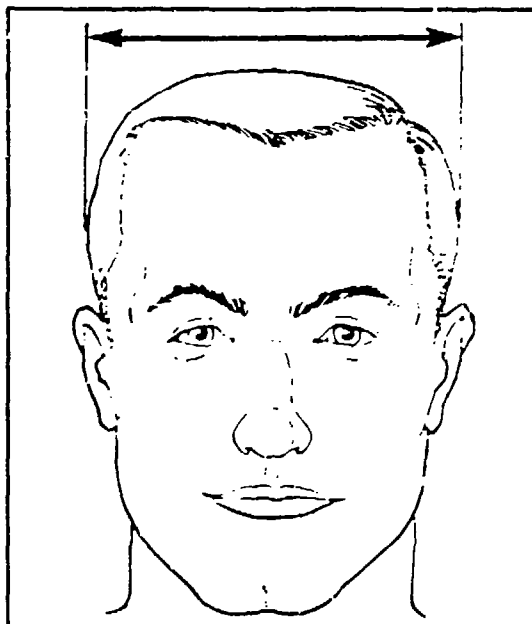
MALES			
CM		INCHES	
19.38	MEAN VALUE	7.63	
.02	SE (MEAN)	.00	
.98	STD DEVIATION	.39	
.02	SE (STD DEV)	.00	
16.00	MINIMUM	6.30	
23.30	MAXIMUM	9.17	
SYMMETRY---VETA I = .31			
KURTOSIS---VETA II = 3.45			
COEF. OF VARIATION = 5.1%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE									
FEMALES					MALES				
F	FPct	CumF	CumFPct	CENTIMETERS	F	FPct	CumF	CumFPct	
1	.05	1	.05	14.75 - 14.95					
2	.09	3	.14	14.95 - 15.15					
2	.09	5	.23	15.15 - 15.35					
7	.32	12	.54	15.35 - 15.55					
4	.18	16	.72	15.55 - 15.75					
8	.36	24	1.09	15.75 - 15.95					
23	1.04	47	2.13	15.95 - 16.15	2	.11	2	.11	
32	1.45	79	3.58	16.15 - 16.35	1	.06	3	.17	
35	1.59	114	5.16	16.35 - 16.55	0	.00	3	.17	
74	3.35	188	8.51	16.55 - 16.75	2	.11	5	.28	
86	3.89	274	12.41	16.75 - 16.95	3	.17	8	.45	
115	5.21	389	17.62	16.95 - 17.15	4	.23	12	.68	
136	6.16	525	23.78	17.15 - 17.35	9	.51	21	1.18	
136	6.16	661	29.94	17.35 - 17.55	15	.85	36	2.03	
187	8.47	848	38.41	17.55 - 17.75	32	1.80	68	3.83	
189	8.56	1037	46.97	17.75 - 17.95	41	2.31	109	6.14	
187	8.47	1224	55.43	17.95 - 18.15	62	3.49	171	9.64	
187	8.47	1411	63.90	18.15 - 18.35	65	3.66	236	13.30	
165	7.47	1576	71.38	18.35 - 18.55	85	5.02	325	18.32	
134	6.07	1710	77.45	18.55 - 18.75	132	7.44	457	25.76	
124	5.62	1834	83.06	18.75 - 18.95	153	8.62	610	34.39	
104	4.71	1938	87.77	18.95 - 19.15	156	8.79	766	43.18	
75	3.40	2013	91.17	19.15 - 19.35	163	9.19	929	52.37	
58	2.63	2071	93.80	19.35 - 19.55	123	6.93	1052	59.30	
34	1.54	2105	95.34	19.55 - 19.75	150	8.46	1202	67.76	
33	1.49	2138	96.83	19.75 - 19.95	102	5.75	1304	73.51	
26	1.18	2164	98.01	19.95 - 20.15	103	5.81	1407	79.31	
16	.72	2180	98.73	20.15 - 20.35	83	4.68	1490	83.99	
8	.36	2188	99.09	20.35 - 20.55	71	4.00	1561	87.99	
9	.41	2197	99.50	20.55 - 20.75	57	3.21	1618	91.21	
3	.14	2200	99.64	20.75 - 20.95	48	2.71	1666	93.91	
4	.18	2204	99.82	20.95 - 21.15	31	1.75	1697	95.66	
2	.09	2206	99.91	21.15 - 21.35	33	1.86	1730	97.52	
2	.09	2208	100.00	21.35 - 21.55	13	.73	1743	98.25	
				21.55 - 21.75	11	.62	1754	98.87	
				21.75 - 21.95	2	.11	1756	98.99	
				21.95 - 22.15	5	.28	1761	99.27	
				22.15 - 22.35	2	.11	1763	99.38	
				22.35 - 22.55	4	.23	1767	99.61	
				22.55 - 22.75	1	.06	1768	99.66	
				22.75 - 22.95	5	.28	1773	99.94	
				22.95 - 23.15	0	.00	1773	99.94	
				23.15 - 23.35	1	.06	1774	100.00	



## (60) HEAD BREADTH

The maximum horizontal breadth of the head above the attachment of the ears is measured with a spreading caliper.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
13.33	5.25	1ST	13.92	5.48	
13.46	5.30	2ND	14.08	5.54	
13.55	5.33	3RD	14.18	5.58	
13.66	5.38	5TH	14.31	5.63	
13.83	5.45	10TH	14.50	5.71	
13.95	5.49	15TH	14.62	5.76	
14.04	5.53	20TH	14.72	5.80	
14.12	5.56	25TH	14.81	5.83	
14.19	5.59	30TH	14.88	5.86	
14.25	5.61	35TH	14.96	5.89	
14.31	5.63	40TH	15.02	5.91	
14.37	5.66	45TH	15.09	5.94	
14.43	5.68	50TH	15.15	5.97	
14.49	5.70	55TH	15.22	5.99	
14.55	5.73	60TH	15.29	6.02	
14.61	5.75	65TH	15.36	6.05	
14.68	5.78	70TH	15.43	6.08	
14.75	5.81	75TH	15.51	6.11	
14.84	5.84	80TH	15.61	6.15	
14.94	5.88	85TH	15.72	6.19	
15.07	5.93	90TH	15.86	6.25	
15.27	6.01	95TH	16.08	6.33	
15.41	6.07	97TH	16.23	6.39	
15.51	6.11	98TH	16.34		
15.69	6.18	99TH	16.52	6.5	

# HEAD BREADTH

## FEMALES

CM		INCHES
14.44	MEAN VALUE	5.69
.00	SE(MEAN)	.00
.49	STD DEVIATION	.19
.00	SE(STD DEV)	.00
12.60	MINIMUM	4.96
16.70	MAXIMUM	6.57

SYMMETRY---VETA I = .23  
 KURTOSIS---VETA II = 3.52  
 COEF. OF VARIATION = 3.4%  
 NUMBER OF SUBJECTS = 2208

## MALES

CM		INCHES
15.17	MEAN VALUE	5.97
.00	SE(MEAN)	.00
.54	STD DEVIATION	.21
.00	SE(STD DEV)	.00
12.80	MINIMUM	5.04
17.30	MAXIMUM	6.81

SYMMETRY---VETA I = .13  
 KURTOSIS---VETA II = 3.32  
 COEF. OF VARIATION = 3.6%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
1	.05	1	.05
0	.00	1	.05
0	.00	1	.05
1	.05	2	.09
2	.09	4	.18
2	.09	6	.27
8	.36	14	.63
12	.54	26	1.18
11	.50	37	1.68
24	1.09	61	2.76
48	2.17	109	4.94
53	2.40	162	7.34
82	3.71	244	11.05
86	3.89	330	14.95
116	5.25	446	20.20
150	6.79	596	26.99
182	8.24	778	35.24
205	9.28	983	44.52
154	6.97	1137	51.49
165	7.47	1302	58.97
180	8.15	1482	67.12
173	7.84	1655	74.95
141	6.39	1796	81.34
95	4.30	1891	85.64
78	3.53	1969	89.18
67	3.03	2036	92.21
48	2.17	2084	94.38
49	2.22	2133	96.60
21	.95	2154	97.55
19	.86	2173	98.41
9	.41	2182	98.82
8	.36	2190	99.18
2	.09	2192	99.28
4	.18	2196	99.46
3	.14	2199	99.59
2	.09	2201	99.68
6	.27	2207	99.95
0	.00	2207	99.95
0	.00	2207	99.95
0	.00	2207	99.95
0	.00	2207	99.95
1	.05	2208	100.00

### CENTIMETERS

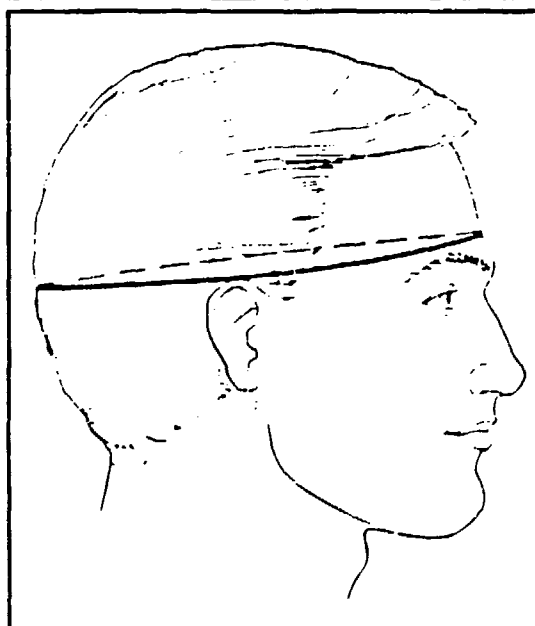
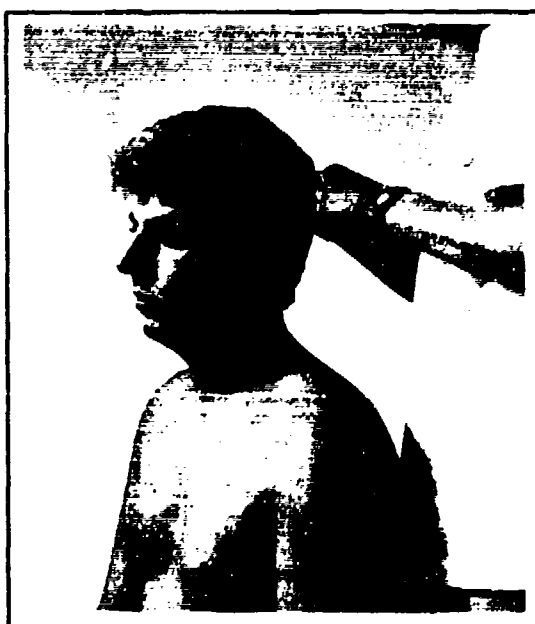
12.55 - 12.65
12.65 - 12.75
12.75 - 12.85
12.85 - 12.95
12.95 - 13.05
13.05 - 13.15
13.15 - 13.25
13.25 - 13.35
13.35 - 13.45
13.45 - 13.55
13.55 - 13.65
13.65 - 13.75
13.75 - 13.85
13.85 - 13.95
13.95 - 14.05
14.05 - 14.15
14.15 - 14.25
14.25 - 14.35
14.35 - 14.45
14.45 - 14.55
14.55 - 14.65
14.65 - 14.75
14.75 - 14.85
14.85 - 14.95
14.95 - 15.05
15.05 - 15.15
15.15 - 15.25
15.25 - 15.35
15.35 - 15.45
15.45 - 15.55
15.55 - 15.65
15.65 - 15.75
15.75 - 15.85
15.85 - 15.95
15.95 - 16.05
16.05 - 16.15
16.15 - 16.25
16.25 - 16.35
16.35 - 16.45
16.45 - 16.55
16.55 - 16.65
16.65 - 16.75
16.75 - 16.85
16.85 - 16.95
16.95 - 17.05
17.05 - 17.15
17.15 - 17.25
17.25 - 17.35

### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
0	.00	1	.06
0	.00	1	.06
0	.00	1	.06
0	.00	1	.06
0	.00	1	.06
0	.00	1	.06
1	.06	2	.11
3	.17	5	.28
8	.45	13	.73
8	.45	21	1.18
10	.56	31	1.75
10	.56	41	2.31
26	1.47	67	3.78
45	2.54	112	6.31
40	2.25	152	8.57
61	3.44	213	12.01
76	4.28	289	16.29
98	5.52	387	21.82
119	6.71	506	28.52
96	5.41	602	33.93
134	7.55	736	41.49
134	7.55	870	49.04
145	8.17	1015	57.22
129	7.27	1144	64.49
117	6.60	1261	71.08
114	6.43	1375	77.51
89	5.02	1464	82.53
79	4.45	1543	86.98
48	2.71	1591	89.68
45	2.54	1636	92.22
33	1.86	1669	94.08
34	1.92	1703	96.00
23	1.30	1726	97.29
15	.85	1741	98.14
10	.56	1751	98.70
8	.45	1759	99.15
7	.39	1766	99.55
4	.23	1770	99.77
1	.06	1771	99.83
0	.00	1771	99.83
1	.06	1772	99.89
0	.00	1772	99.89
1	.06	1773	99.94
1	.06	1774	100.00

## (61) HEAD CIRCUMFERENCE

The maximum circumference of the head above the attachment of the ears to the head is measured with a tape passing just above the ridges of the eyebrows and around the back of the head.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
51.34	20.21	1ST	53.32	20.99	
51.69	20.35	2ND	53.69	21.14	
51.92	20.44	3RD	53.93	21.23	
52.25	20.57	5TH	54.27	21.37	
52.77	20.78	10TH	54.81	21.58	
53.13	20.92	15TH	55.18	21.72	
53.41	21.03	20TH	55.47	21.84	
53.65	21.12	25TH	55.73	21.94	
53.86	21.20	30TH	55.96	22.03	
54.06	21.28	35TH	56.17	22.11	
54.24	21.36	40TH	56.37	22.19	
54.42	21.43	45TH	56.56	22.27	
54.60	21.50	50TH	56.75	22.34	
54.77	21.56	55TH	56.94	22.42	
54.95	21.63	60TH	57.13	22.49	
55.14	21.71	65TH	57.33	22.57	
55.33	21.78	70TH	57.54	22.65	
55.55	21.87	75TH	57.77	22.75	
55.79	21.96	80TH	58.03	22.85	
56.07	22.08	85TH	58.34	22.97	
56.45	22.23	90TH	58.73	23.12	
57.05	22.46	95TH	59.35	23.37	
57.48	22.63	97TH	59.77	23.53	
57.82	22.76	98TH	60.10	23.66	
58.40	22.99	99TH	60.65	23.88	

# HEAD CIRCUMFERENCE

## FEMALES

CM		INCHES
54.62	MEAN VALUE	21.50
.03	SE (MEAN)	.00
1.46	STD DEVIATION	.58
.02	SE (STD DEV)	.00
50.00	MINIMUM	19.69
61.10	MAXIMUM	24.06

SYMMETRY---VETA I = .19  
 KURTOSIS---VETA II = 3.34  
 COEF. OF VARIATION = 2.7%  
 NUMBER OF SUBJECTS = 2208

## MALES

CM		INCHES
56.77	MEAN VALUE	22.35
.04	SE (MEAN)	.00
1.54	STD DEVIATION	.60
.03	SE (STD DEV)	.00
51.40	MINIMUM	20.24
62.70	MAXIMUM	24.69

SYMMETRY---VETA I = .10  
 KURTOSIS---VETA II = 3.16  
 COEF. OF VARIATION = 2.7%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
1	.05	1	.05
2	.09	3	.14
2	.09	5	.23
5	.23	10	.45
5	.23	15	.68
9	.41	24	1.09
8	.36	32	1.45
21	.95	53	2.40
27	1.22	80	3.62
44	1.99	124	5.62
39	1.77	163	7.38
79	3.58	242	10.96
58	2.63	300	13.59
111	5.03	411	18.61
86	3.89	497	22.51
162	7.34	659	29.85
112	5.07	771	34.92
217	9.83	988	44.75
131	5.93	1119	50.68
143	6.48	1262	57.16
106	4.80	1368	61.96
178	8.06	1546	70.02
104	4.71	1650	74.73
128	5.80	1778	80.53
66	2.99	1844	83.51
105	4.76	1949	88.27
50	2.26	1999	90.53
78	3.53	2077	94.07
25	1.13	2102	95.20
41	1.86	2143	97.06
12	.54	2155	97.60
13	.59	2168	98.19
5	.23	2173	98.41
10	.45	2183	98.87
4	.18	2187	99.05
14	.63	2201	99.68
1	.05	2202	99.73
1	.05	2203	99.77
1	.05	2204	99.82
1	.05	2205	99.86
0	.00	2205	99.86
2	.09	2207	99.95
0	.00	2207	99.95
0	.00	2207	99.95
0	.00	2207	99.95
1	.05	2208	100.00

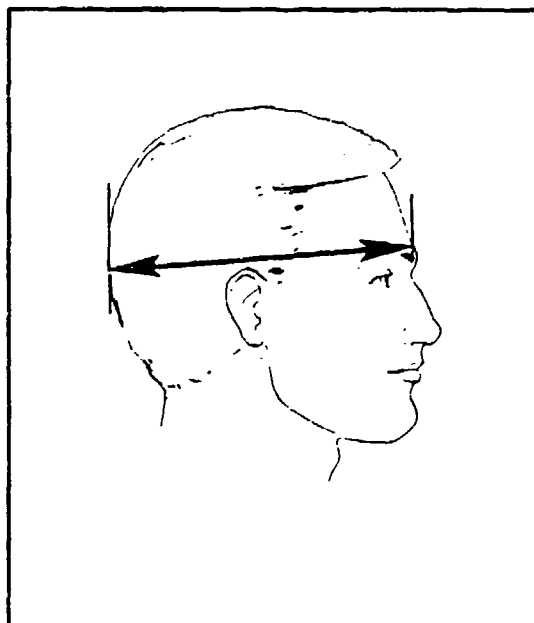
CENTIMETERS
49.85 - 50.10
50.10 - 50.35
50.35 - 50.60
50.60 - 50.85
50.85 - 51.10
51.10 - 51.35
51.35 - 51.60
51.60 - 51.85
51.85 - 52.10
52.10 - 52.35
52.35 - 52.60
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60.35 - 60.60
60.60 - 60.85
60.85 - 61.10
61.10 - 61.35
61.35 - 61.60
61.60 - 61.85
61.85 - 62.10
62.10 - 62.35
62.35 - 62.60
62.60 - 62.85

### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
1	.06	2	.11
0	.00	2	.11
2	.11	4	.23
1	.06	5	.28
4	.23	9	.51
2	.11	11	.62
6	.34	17	.96
10	.56	27	1.52
23	1.30	50	2.82
16	.90	66	3.72
35	1.97	101	5.69
30	1.69	131	7.38
45	2.54	176	9.92
49	2.76	225	12.68
90	5.07	315	17.76
58	3.27	373	21.03
132	7.44	505	28.47
69	3.89	574	32.36
122	6.88	696	39.23
97	5.47	793	44.70
140	7.89	933	52.59
85	4.79	1018	57.38
140	7.89	1158	65.28
97	5.47	1255	70.74
102	5.75	1357	76.49
67	3.78	1424	80.27
104	5.86	1528	86.13
35	1.97	1563	88.11
65	3.66	1628	91.77
27	1.52	1655	93.29
36	2.03	1691	95.32
15	.85	1706	96.17
18	1.01	1724	97.18
6	.34	1730	97.52
18	1.01	1748	98.53
7	.39	1755	98.93
11	.62	1766	99.55
2	.11	1768	99.66
1	.06	1769	99.72
3	.17	1772	99.89
1	.06	1773	99.94
0	.00	1773	99.94
0	.00	1773	99.94
0	.00	1773	99.94
1	.06	1774	100.00

## (62) HEAD LENGTH

The distance from the glabella landmark between the browridges to the posterior point on the back of the head is measured with a spreading caliper.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
17.23	6.78	1ST	18.02	7.09
17.38	6.84	2ND	18.23	7.18
17.48	6.88	3RD	18.36	7.23
17.63	6.94	5TH	18.53	7.30
17.87	7.04	10TH	18.81	7.40
18.04	7.10	15TH	18.99	7.47
18.17	7.16	20TH	19.13	7.53
18.29	7.20	25TH	19.25	7.58
18.39	7.24	30TH	19.35	7.62
18.48	7.28	35TH	19.45	7.66
18.57	7.31	40TH	19.54	7.69
18.66	7.34	45TH	19.63	7.73
18.74	7.38	50TH	19.72	7.76
18.82	7.41	55TH	19.81	7.80
18.90	7.44	60TH	19.90	7.83
18.98	7.47	65TH	19.99	7.87
19.07	7.51	70TH	20.08	7.91
19.16	7.54	75TH	20.18	7.95
19.26	7.58	80TH	20.30	7.99
19.38	7.63	85TH	20.43	8.04
19.53	7.69	90TH	20.60	8.11
19.75	7.77	95TH	20.85	8.21
19.90	7.83	97TH	21.01	8.27
20.01	7.88	98TH	21.14	8.32
20.19	7.95	99TH	21.34	8.40

# HEAD LENGTH

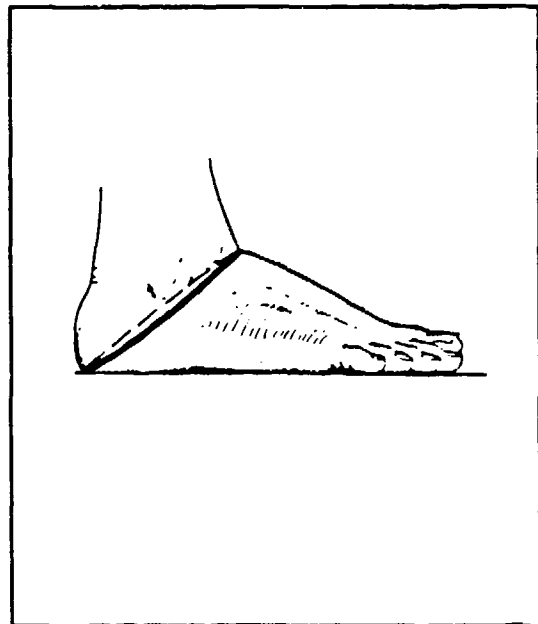
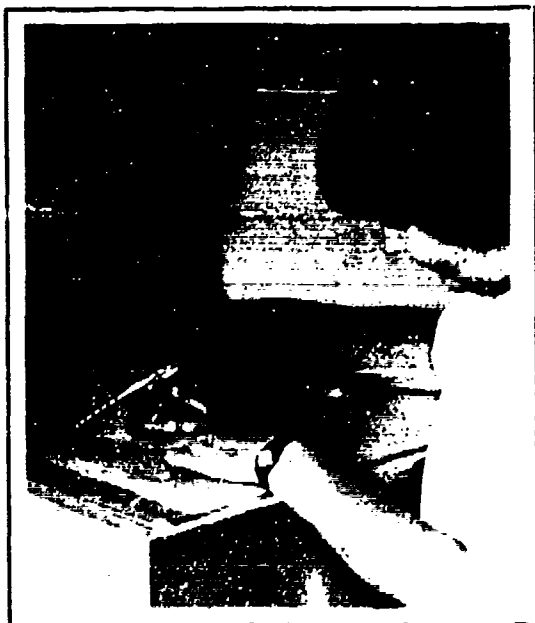
FEMALES			
CM		INCHES	
18.72	MEAN VALUE	7.37	
.00	SE (MEAN)	.00	
.64	STD DEVIATION	.25	
.00	SE (STD DEV)	.00	
15.80	MINIMUM	6.22	
21.10	MAXIMUM	8.31	
SYMMETRY---VETA I = -.11			
KURTOSIS---VETA II = 3.14			
COEF. OF VARIATION = 3.4%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
19.71	MEAN VALUE	7.76	
.02	SE (MEAN)	.00	
.71	STD DEVIATION	.28	
.00	SE (STD DEV)	.00	
17.30	MINIMUM	6.81	
22.00	MAXIMUM	8.66	
SYMMETRY---VETA I = -.06			
KURTOSIS---VETA II = 3.05			
COEF. OF VARIATION = 3.6%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS	F	FPct	CumF
1	.05	1	.05	15.75 - 15.95	1	.06	1
0	.00	1	.05	15.95 - 16.15	1	.06	2
1	.05	2	.09	16.15 - 16.35	4	.23	6
1	.05	3	.14	16.35 - 16.55	8	.45	14
1	.05	4	.18	16.55 - 16.75	16	.90	30
3	.14	7	.32	16.75 - 16.95	18	1.01	48
8	.36	15	.68	16.95 - 17.15	46	2.59	94
19	.86	34	1.54	17.15 - 17.35	63	3.55	157
50	2.26	84	3.80	17.35 - 17.55	93	5.24	250
63	2.85	147	6.66	17.55 - 17.75	118	6.65	368
110	4.98	257	11.64	17.75 - 17.95	178	10.03	546
153	6.93	410	18.57	17.95 - 18.15	163	9.19	709
218	9.87	628	28.44	18.15 - 18.35	208	11.72	917
229	10.37	857	38.81	18.35 - 18.55	190	10.71	1107
273	12.36	1130	51.18	18.55 - 18.75	183	10.32	1290
260	11.78	1390	62.95	18.75 - 18.95	175	9.86	1465
238	10.78	1628	73.73	18.95 - 19.15	103	5.81	1568
225	10.19	1953	83.92	19.15 - 19.35	85	4.79	1653
156	7.07	2009	90.99	19.35 - 19.55	58	3.27	1711
91	4.12	2100	95.11	19.55 - 19.75	32	1.80	1743
59	2.67	2159	97.78	19.75 - 19.95	13	.73	1756
22	1.00	2181	98.78	19.95 - 20.15	8	.45	1764
19	.86	2200	99.64	20.15 - 20.35	7	.39	1771
5	.23	2205	99.86	20.35 - 20.55	2	.11	1773
0	.00	2205	99.86	20.55 - 20.75	1	.06	1774
2	.09	2207	99.95	20.75 - 20.95			
1	.05	2208	100.00	20.95 - 21.15			
				21.15 - 21.35			
				21.35 - 21.55			
				21.55 - 21.75			
				21.75 - 21.95			
				21.95 - 22.15			

## (63) HEEL ANKLE CIRCUMFERENCE

The circumference of the right foot at the ankle and base of the heel is measured with a tape passing over the point at which the heel first contacts the table and over the dorsal-juncture-of-the-foot-and-leg landmark at the front of the ankle. The subject stands with the feet about 10 cm apart and the weight distributed equally on both feet.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
27.25	10.73	1ST	30.31	11.93	
27.56	10.85	2ND	30.69	12.08	
27.77	10.93	3RD	30.94	12.18	
28.08	11.06	5TH	31.29	12.32	
28.58	11.25	10TH	31.84	12.54	
28.93	11.39	15TH	32.23	12.69	
29.21	11.50	20TH	32.53	12.81	
29.46	11.60	25TH	32.80	12.91	
29.68	11.68	30TH	33.03	13.01	
29.88	11.76	35TH	33.25	13.09	
30.07	11.84	40TH	33.46	13.17	
30.26	11.91	45TH	33.67	13.25	
30.44	11.99	50TH	33.87	13.33	
30.63	12.06	55TH	34.07	13.41	
30.82	12.13	60TH	34.27	13.49	
31.01	12.21	65TH	34.49	13.58	
31.22	12.29	70TH	34.71	13.67	
31.44	12.38	75TH	34.96	13.76	
31.69	12.48	80TH	35.24	13.87	
31.99	12.60	85TH	35.56	14.00	
32.38	12.75	90TH	35.99	14.17	
33.00	12.99	95TH	36.65	14.43	
33.43	13.16	97TH	37.11	14.61	
33.76	13.29	98TH	37.46	14.75	
34.34	13.52	99TH	38.04	14.98	

# HEEL ANKLE CIRCUMFERENCE

FEMALES			
CM		INCHES	
30.48	MEAN VALUE	12.00	
.03	SE (MEAN)	.00	
1.49	STD DEVIATION	.59	
.02	SE (STD DEV)	.00	
25.70	MINIMUM	10.12	
36.50	MAXIMUM	14.37	
SYMMETRY---VETA I = .21			
KURTOSIS---VETA II = 3.16			
COEF. OF VARIATION = 4.9%			
NUMBER OF SUBJECTS = 2208			

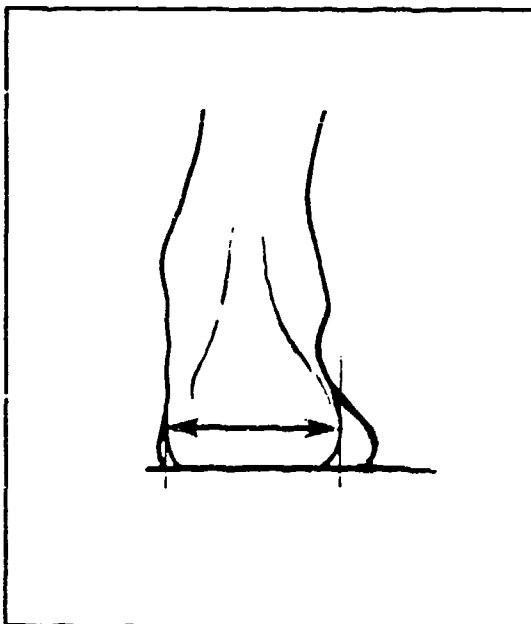
MALES			
CM		INCHES	
33.90	MEAN VALUE	13.35	
.04	SE (MEAN)	.02	
1.63	STD DEVIATION	.54	
.03	SE (STD DEV)	.00	
28.80	MINIMUM	11.34	
40.20	MAXIMUM	15.83	
SYMMETRY---VETA I = .18			
KURTOSIS---VETA II = 3.16			
COEF. OF VARIATION = 4.8%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	25.25 -	25.75						
3	.14	4	.18	25.75 -	26.25						
3	.14	7	.32	26.25 -	26.75						
15	.68	22	1.00	26.75 -	27.25						
39	1.77	61	2.76	27.25 -	27.75						
71	3.22	132	5.98	27.75 -	28.25						
119	5.39	251	11.37	28.25 -	28.75						
196	8.88	447	20.24	28.75 -	29.25	4	.23	4	.23		
255	11.55	702	31.79	29.25 -	29.75	2	.11	6	.34		
285	12.91	987	44.70	29.75 -	30.25	9	.51	15	.85		
301	13.63	1288	58.33	30.25 -	30.75	21	1.18	36	2.03		
277	12.55	1565	70.88	30.75 -	31.25	39	2.20	75	4.23		
213	9.65	1778	80.53	31.25 -	31.75	81	4.57	156	8.79		
162	7.34	1940	87.86	31.75 -	32.25	130	7.33	286	16.12		
124	5.62	2064	93.48	32.25 -	32.75	132	7.44	418	23.56		
64	2.90	2128	96.38	32.75 -	33.25	194	10.94	612	34.50		
40	1.81	2168	98.19	33.25 -	33.75	210	11.84	822	46.34		
13	.59	2181	98.78	33.75 -	34.25	220	12.40	1042	58.74		
15	.68	2196	99.46	34.25 -	34.75	221	12.46	1263	71.20		
10	.45	2206	99.91	34.75 -	35.25	168	9.47	1431	80.67		
1	.05	2207	99.95	35.25 -	35.75	119	6.71	1550	87.37		
0	.00	2207	99.95	35.75 -	36.25	77	4.34	1627	91.71		
1	.05	2208	100.00	36.25 -	36.75	60	3.38	1687	95.10		
				36.75 -	37.25	45	2.54	1732	97.63		
				37.25 -	37.75	18	1.01	1750	98.65		
				37.75 -	38.25	14	.79	1764	99.44		
				38.25 -	38.75	4	.23	1768	99.66		
				38.75 -	39.25	3	.17	1771	99.83		
				39.25 -	39.75	2	.11	1773	99.94		
				39.75 -	40.25	1	.06	1774	100.00		



## (64) HEEL BREADTH

The maximum horizontal distance between the medial and lateral points on the inside and outside of the right heel, at or posterior to the lateral malleolus landmark, is measured with a Holtain caliper. The measurement is taken just above the level of the standing surface at the most protruding points of the curvature of the heel. The subject stands with the feet about 10 cm apart and the weight distributed equally on both feet.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
5.32	2.09	1ST	5.97	2.35	
5.41	2.13	2ND	6.07	2.39	
5.48	2.16	3RD	6.14	2.42	
5.57	2.19	5TH	6.23	2.45	
5.71	2.25	10TH	6.38	2.51	
5.81	2.29	15TH	6.48	2.55	
5.89	2.32	20TH	6.57	2.59	
5.96	2.35	25TH	6.64	2.62	
6.03	2.37	30TH	6.71	2.64	
6.09	2.40	35TH	6.78	2.67	
6.15	2.42	40TH	6.84	2.69	
6.21	2.44	45TH	6.90	2.72	
6.27	2.47	50TH	6.97	2.74	
6.33	2.49	55TH	7.03	2.77	
6.39	2.52	60TH	7.10	2.80	
6.46	2.54	65TH	7.17	2.82	
6.53	2.57	70TH	7.25	2.86	
6.61	2.60	75TH	7.34	2.89	
6.69	2.64	80TH	7.44	2.93	
6.80	2.68	85TH	7.56	2.98	
6.94	2.73	90TH	7.71	3.04	
7.14	2.81	95TH	7.95	3.13	
7.28	2.87	97TH	8.12	3.20	
7.39	2.91	98TH	8.24	3.25	
7.56	2.98	99TH	8.45	3.33	

# HEEL BREADTH

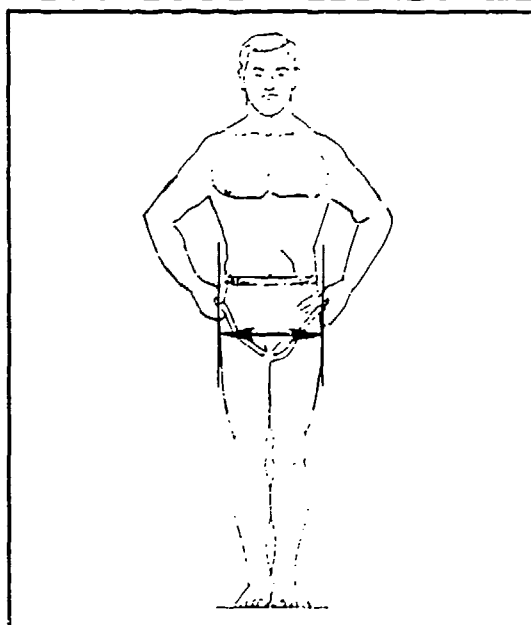
FEMALES		
CM		INCHES
6.30	MEAN VALUE	2.48
.00	SE(MEAN)	.00
.48	STD DEVIATION	.19
.00	SE(STD DEV)	.00
5.00	MINIMUM	1.97
8.40	MAXIMUM	3.31
SYMMETRY---VETA I = .41		
KURTOSIS---VETA II = 3.29		
COEF. OF VARIATION = 7.7%		
NUMBER OF SUBJECTS = 2208		

MALES		
CM		INCHES
7.01	MEAN VALUE	2.76
.00	SE(MEAN)	.00
.53	STD DEVIATION	.21
.00	SE(STD DEV)	.00
5.50	MINIMUM	2.17
9.00	MAXIMUM	3.54
SYMMETRY---VETA I = .49		
KURTOSIS---VETA II = 3.36		
COEF. OF VARIATION = 7.5%		
NUMBER OF SUBJECTS = 1774		

FREQUENCY TABLE									
FEMALES					MALES				
F	FPct	CumF	CumFPct	CENTIMETERS	F	FPct	CumF	CumFPct	
1	.05	1	.05	4.95 - 5.05					
2	.09	3	.14	5.05 - 5.15					
13	.59	16	.72	5.15 - 5.25					
10	.45	26	1.18	5.25 - 5.35					
26	1.18	52	2.36	5.35 - 5.45					
42	1.90	94	4.26	5.45 - 5.55					
68	3.08	162	7.34	5.55 - 5.65	1	.06	1	.06	
139	6.30	301	13.63	5.65 - 5.75	1	.06	2	.11	
78	3.53	379	17.16	5.75 - 5.85	0	.00	2	.11	
129	5.84	508	23.01	5.85 - 5.95	2	.11	4	.23	
209	9.47	717	32.47	5.95 - 6.05	8	.45	12	.68	
168	7.61	885	40.08	6.05 - 6.15	18	1.01	30	1.69	
184	8.33	1069	48.41	6.15 - 6.25	30	1.69	60	3.38	
191	8.20	1250	56.61	6.25 - 6.35	48	2.71	108	6.09	
158	7.16	1408	63.77	6.35 - 6.45	58	3.27	166	9.36	
167	7.56	1575	71.33	6.45 - 6.55	52	2.93	218	12.29	
148	6.70	1723	78.03	6.55 - 6.65	115	6.48	333	18.77	
137	6.20	1860	84.24	6.65 - 6.75	109	6.14	442	24.92	
61	2.76	1921	87.00	6.75 - 6.85	133	7.50	575	32.41	
68	3.08	1989	90.08	6.85 - 6.95	131	7.38	706	39.80	
70	3.17	2059	93.25	6.95 - 7.05	131	7.38	837	47.18	
37	1.68	2096	94.93	7.05 - 7.15	171	9.64	1008	56.82	
35	1.59	2131	96.51	7.15 - 7.25	138	7.78	1146	64.60	
28	1.27	2159	97.78	7.25 - 7.35	114	6.43	1260	71.03	
17	.77	2176	98.55	7.35 - 7.45	82	4.62	1342	75.65	
9	.41	2185	98.96	7.45 - 7.55	90	5.07	1432	80.72	
7	.32	2192	99.28	7.55 - 7.65	79	4.45	1511	85.17	
7	.32	2199	99.59	7.65 - 7.75	60	3.38	1571	88.56	
1	.05	2200	99.64	7.75 - 7.85	46	2.59	1617	91.15	
3	.14	2203	99.77	7.85 - 7.95	30	1.69	1647	92.84	
0	.00	2203	99.77	7.95 - 8.05	29	1.63	1676	94.48	
4	.18	2207	99.95	8.05 - 8.15	32	1.80	1708	96.28	
0	.00	2207	99.95	8.15 - 8.25	15	.85	1723	97.13	
0	.00	2207	99.95	8.25 - 8.35	15	.85	1738	97.97	
1	.05	2208	100.00	8.35 - 8.45	13	.73	1751	98.70	
				8.45 - 8.55	7	.39	1758	99.10	
				8.55 - 8.65	4	.23	1762	99.32	
				8.65 - 8.75	2	.11	1764	99.44	
				8.75 - 8.85	5	.28	1769	99.72	
				8.85 - 8.95	2	.11	1771	99.83	
				8.95 - 9.05	1	.06	1772	99.89	
					2	.11	1774	100.00	

## (65) HIP BREADTH

The horizontal distance between the lateral buttock landmarks on the sides of the hips is measured with a beam caliper. The subject stands erect with the heels together and the weight distributed equally on both feet.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
29.58	11.65	1ST	29.64	11.67	
30.05	11.83	2ND	30.18	11.88	
30.35	11.95	3RD	30.51	12.01	
30.78	12.12	5TH	30.97	12.19	
31.47	12.39	10TH	31.66	12.46	
31.96	12.58	15TH	32.12	12.65	
32.35	12.74	20TH	32.49	12.79	
32.70	12.87	25TH	32.81	12.92	
33.01	13.00	30TH	33.10	13.03	
33.31	13.11	35TH	33.36	13.14	
33.59	13.23	40TH	33.62	13.24	
33.87	13.34	45TH	33.87	13.33	
34.15	13.45	50TH	34.12	13.43	
34.44	13.56	55TH	34.37	13.53	
34.73	13.67	60TH	34.62	13.63	
35.03	13.79	65TH	34.89	13.74	
35.36	13.92	70TH	35.18	13.85	
35.71	14.06	75TH	35.49	13.97	
36.12	14.22	80TH	35.85	14.11	
36.59	14.41	85TH	36.27	14.28	
37.21	14.65	90TH	36.82	14.50	
38.15	15.02	95TH	37.65	14.82	
38.77	15.27	97TH	38.22	15.05	
39.24	15.45	98TH	38.64	15.21	
40.00	15.75	99TH	39.32	15.48	

# HIP BREADTH

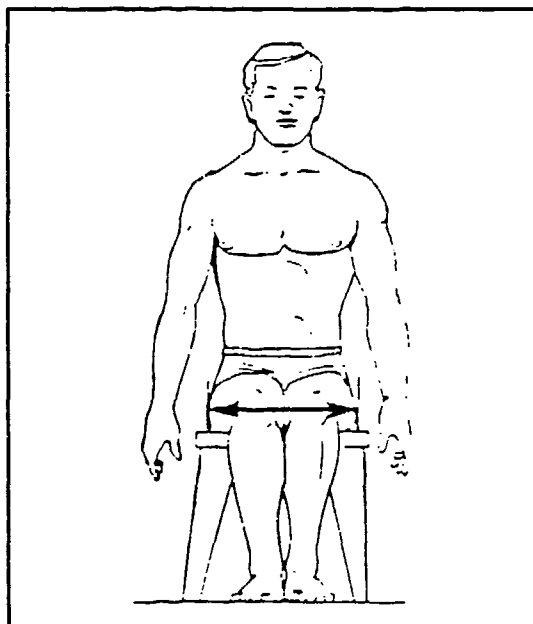
FEMALES			
<u>CM</u>		<u>INCHES</u>	
34.27	MEAN VALUE	13.49	
.05	SE (MEAN)	.02	
2.24	STD DEVIATION	.88	
.03	SE (STD DEV)	.00	
27.00	MINIMUM	10.63	
42.00	MAXIMUM	16.54	
SYMMETRY---VETA I		=	.29
KURTOSIS---VETA II		=	3.01
COEF. OF VARIATION		=	6.5%
NUMBER OF SUBJECTS		=	2208

MALES			
<u>CM</u>		<u>INCHES</u>	
34.18	MEAN VALUE	13.46	
.05	SE (MEAN)	.02	
2.03	STD DEVIATION	.80	
.03	SE (STD DEV)	.00	
28.20	MINIMUM	11.10	
41.60	MAXIMUM	16.38	
SYMMETRY---VETA I		=	.18
KURTOSIS---VETA II		=	3.15
COEF. OF VARIATION		=	5.9%
NUMBER OF SUBJECTS		=	1774

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct	CumF	CumFPct		
1	.05	1	.05	26.75 -	27.25						
0	.00	1	.05	27.25 -	27.75						
0	.00	1	.05	27.75 -	28.25	2	.11	2	.11		
3	.14	4	.18	28.25 -	28.75	4	.23	6	.34		
10	.45	14	.63	28.75 -	29.25	6	.34	12	.68		
14	.63	28	1.27	29.25 -	29.75	11	.62	23	1.30		
26	1.18	54	2.45	29.75 -	30.25	16	.90	39	2.20		
43	1.95	97	4.39	30.25 -	30.75	28	1.58	67	3.78		
90	4.08	187	8.47	30.75 -	31.25	52	2.93	119	6.71		
93	4.21	280	12.68	31.25 -	31.75	81	4.57	200	11.27		
116	5.25	396	17.93	31.75 -	32.25	99	5.58	299	16.85		
190	8.61	586	26.54	32.25 -	32.75	116	6.54	415	23.39		
180	8.15	766	34.69	32.75 -	33.25	167	9.41	582	32.81		
179	8.11	945	42.80	33.25 -	33.75	185	10.43	767	43.24		
188	8.51	1133	51.31	33.75 -	34.25	162	9.13	929	52.37		
210	9.51	1343	60.82	34.25 -	34.75	176	9.92	1105	62.29		
155	7.02	1498	67.84	34.75 -	35.25	154	8.68	1259	70.97		
159	7.20	1657	75.05	35.25 -	35.75	136	7.67	1395	78.64		
134	6.07	1791	81.11	35.75 -	36.25	121	6.82	1516	85.46		
120	5.43	1911	86.55	36.25 -	36.75	78	4.40	1594	89.85		
91	4.12	2002	90.67	36.75 -	37.25	60	3.38	1654	93.24		
50	2.26	2052	92.93	37.25 -	37.75	38	2.14	1692	95.38		
57	2.58	2109	95.52	37.75 -	38.25	32	1.80	1724	97.18		
35	1.59	2144	97.10	38.25 -	38.75	14	.79	1738	97.97		
21	.95	2165	98.05	38.75 -	39.25	18	1.01	1756	98.99		
15	.68	2180	98.73	39.25 -	39.75	11	.62	1767	99.61		
10	.45	2190	99.18	39.75 -	40.25	3	.17	1770	99.77		
5	.23	2195	99.41	40.25 -	40.75	1	.06	1771	99.83		
6	.27	2201	99.68	40.75 -	41.25	0	.00	1771	99.83		
6	.27	2207	99.95	41.25 -	41.75	3	.17	1774	100.00		
1	.05	2208	100.00	41.75 -	42.25						

## (66) HIP BREADTH, SITTING

The distance between the lateral points of the hips or thighs (whichever are broader) is measured with a beam caliper. The subject sits erect with the feet and knees together.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
32.71	12.88	1ST	31.15	12.26
33.33	13.12	2ND	31.90	12.56
33.72	13.28	3RD	32.33	12.73
34.25	13.48	5TH	32.87	12.94
35.06	13.81	10TH	33.64	13.24
35.65	14.03	15TH	34.15	13.45
36.11	14.22	20TH	34.56	13.60
36.52	14.38	25TH	34.91	13.75
36.90	14.53	30TH	35.24	13.88
37.25	14.67	35TH	35.56	14.00
37.60	14.80	40TH	35.86	14.12
37.94	14.94	45TH	36.16	14.24
38.28	15.07	50TH	36.47	14.36
38.63	15.21	55TH	36.79	14.49
38.99	15.35	60TH	37.12	14.62
39.36	15.50	65TH	37.48	14.75
39.77	15.66	70TH	37.86	14.90
40.21	15.83	75TH	38.28	15.07
40.72	16.03	80TH	38.77	15.26
41.32	16.27	85TH	39.34	15.49
42.08	16.57	90TH	40.07	15.78
43.22	17.02	95TH	41.16	16.20
43.96	17.31	97TH	41.84	16.47
44.49	17.52	98TH	42.32	16.66
45.32	17.84	99TH	43.00	16.93

# HIP BREADTH, SITTING

## FEMALES

CM		INCHES
38.45	MEAN VALUE	15.14
.06	SE(MEAN)	.02
2.72	STD DEVIATION	1.07
.04	SE(STD DEV)	.02
30.80	MINIMUM	12.13
49.30	MAXIMUM	19.41

SYMMETRY---VETA I	=	.34
KURTOSIS---VETA II	=	3.11
COEF. OF VARIATION	=	7.1%
NUMBER OF SUBJECTS	=	2208

## MALES

CM		INCHES
36.68	MEAN VALUE	14.44
.06	SE(MEAN)	.02
2.52	STD DEVIATION	.99
.04	SE(STD DEV)	.02
29.90	MINIMUM	11.77
48.40	MAXIMUM	19.06

SYMMETRY---VETA I	=	.36
KURTOSIS---VETA II	=	3.22
COEF. OF VARIATION	=	6.9%
NUMBER OF SUBJECTS	=	1774

## FREQUENCY TABLE

### FEMALES

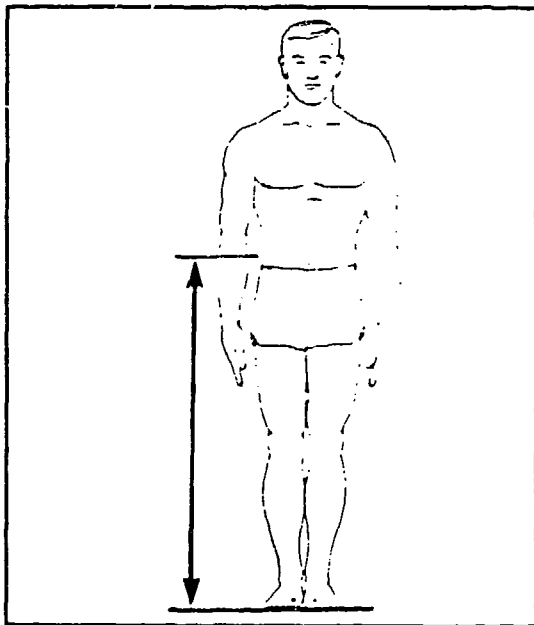
F	FPct	CumF	CumFPct
1	.05	1	.05
2	.09	3	.14
8	.36	11	.50
13	.59	24	1.09
15	.68	39	1.77
27	1.22	66	2.99
40	1.81	106	4.80
63	2.85	169	7.65
79	3.58	248	11.23
105	4.76	353	15.99
121	5.48	474	21.47
163	7.38	637	28.85
143	6.48	780	35.33
161	7.29	941	42.62
142	6.43	1083	49.05
167	7.56	1250	56.61
141	6.39	1391	63.00
139	6.30	1530	69.29
130	5.89	1660	75.18
114	5.16	1774	80.34
94	4.26	1868	84.60
82	3.71	1950	88.32
75	3.40	2025	91.71
41	1.86	2066	93.57
32	1.45	2098	95.02
34	1.54	2132	96.56
25	1.13	2157	97.69
14	.63	2171	98.32
14	.63	2185	98.96
6	.27	2191	99.23
8	.36	2199	99.59
2	.09	2201	99.68
1	.05	2202	99.73
2	.09	2204	99.82
1	.05	2205	99.86
1	.05	2206	99.91
1	.05	2207	99.95
1	.05	2208	100.00

### MALES

F	FPct	CumF	CumFPct
4	.23	4	.23
6	.34	10	.56
10	.56	20	1.13
8	.45	28	1.58
23	1.30	51	2.87
21	1.18	72	4.06
45	2.54	117	6.60
76	4.28	193	10.88
97	5.47	290	16.35
122	6.88	412	23.22
124	6.99	536	30.21
134	7.55	670	37.77
151	8.51	821	46.28
140	7.89	961	54.17
138	7.78	1099	61.95
116	6.54	1215	68.49
107	6.03	1322	74.52
97	5.47	1419	79.99
80	4.51	1499	84.50
60	3.38	1559	87.88
61	3.44	1620	91.32
38	2.14	1658	93.46
36	2.03	1694	95.49
23	1.30	1717	96.79
18	1.01	1735	97.80
17	.96	1752	98.76
9	.51	1761	99.27
3	.17	1764	99.44
3	.17	1767	99.61
5	.28	1772	99.89
0	.00	1772	99.89
0	.00	1772	99.89
1	.06	1773	99.94
0	.00	1773	99.94
0	.00	1773	99.94
0	.00	1773	99.94
1	.06	1774	100.00

## (67) ILIOCRISTALE HEIGHT

The vertical distance between a standing surface and the iliocristale landmark on the top of the right side of the pelvis is measured with an anthropometer. The subject stands erect with the heels together and the weight distributed equally on both feet. The shoulders and upper extremities are relaxed.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
87.95	34.63	1ST	95.66	37.66
89.24	35.13	2ND	97.07	38.22
90.05	35.45	3RD	97.94	38.56
91.13	35.88	5TH	99.10	39.02
92.79	36.53	10TH	100.86	39.71
93.90	36.97	15TH	102.05	40.18
94.79	37.32	20TH	102.99	40.55
95.56	37.62	25TH	103.81	40.87
96.26	37.90	30TH	104.56	41.16
96.90	38.15	35TH	105.25	41.44
97.52	38.39	40TH	105.91	41.70
98.12	38.63	45TH	106.56	41.95
98.73	38.87	50TH	107.21	42.21
99.33	39.11	55TH	107.86	42.46
99.95	39.35	60TH	108.52	42.73
100.60	39.61	65TH	109.22	43.00
101.29	39.88	70TH	109.95	43.29
102.04	40.17	75TH	110.75	43.60
102.90	40.51	80TH	111.65	43.96
103.90	40.90	85TH	112.69	44.36
105.18	41.41	90TH	114.00	44.88
107.12	42.17	95TH	115.89	45.63
108.39	42.67	97TH	117.07	46.09
109.33	43.04	98TH	117.91	46.42
110.82	43.63	99TH	119.15	46.91

# ILIOCRISTALE HEIGHT

FEMALES			
CM		INCHES	
98.88	MEAN VALUE	38.93	
.10	SE (MEAN)	.04	
4.82	STD DEVIATION	1.90	
.07	SE (STD DEV)	.03	
81.50	MINIMUM	32.09	
117.80	MAXIMUM	46.38	
SYMMETRY---VETA I = .13			
KURTOSIS---VETA II = 3.08			
COEF. OF VARIATION = 4.9%			
NUMBER OF SUBJECTS = 2208			

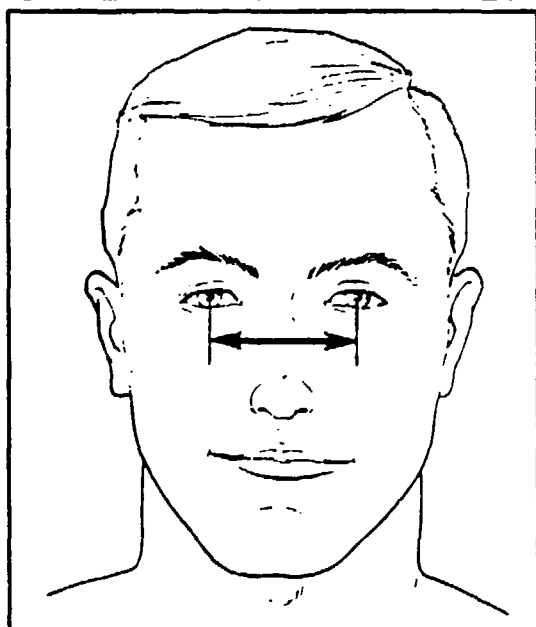
MALES			
CM		INCHES	
107.34	MEAN VALUE	42.26	
.12	SE (MEAN)	.05	
5.14	STD DEVIATION	2.02	
.09	SE (STD DEV)	.03	
87.70	MINIMUM	34.53	
131.70	MAXIMUM	51.85	
SYMMETRY---VETA I = .12			
KURTOSIS---VETA II = 3.25			
COEF. OF VARIATION = 4.8%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	80.55	- 81.55						
0	.00	1	.05	81.55	- 82.55						
1	.05	2	.09	82.55	- 83.55						
0	.00	2	.09	83.55	- 84.55						
2	.09	4	.18	84.55	- 85.55						
4	.18	8	.36	85.55	- 86.55						
8	.36	16	.72	86.55	- 87.55						
18	.82	34	1.54	87.55	- 88.55	1	.06	1	.06		
12	.54	46	2.08	88.55	- 89.55	0	.00	1	.06		
34	1.54	80	3.62	89.55	- 90.55	0	.00	1	.06		
44	1.99	124	5.62	90.55	- 91.55	1	.06	2	.11		
77	3.49	201	9.10	91.55	- 92.55	1	.06	3	.17		
87	3.94	288	13.04	92.55	- 93.55	1	.06	4	.23		
125	5.66	413	18.70	93.55	- 94.55	6	.34	10	.56		
136	6.16	549	24.86	94.55	- 95.55	6	.34	16	.90		
157	7.11	706	31.97	95.55	- 96.55	11	.62	27	1.52		
182	8.24	888	40.22	96.55	- 97.55	17	.96	44	2.48		
184	8.33	1072	48.55	97.55	- 98.55	21	1.18	65	3.66		
181	8.20	1253	56.75	98.55	- 99.55	35	1.97	100	5.64		
184	8.33	1437	65.08	99.55	- 100.55	61	3.44	161	9.08		
156	7.07	1593	72.15	100.55	- 101.55	70	3.95	231	13.02		
116	5.25	1709	77.40	101.55	- 102.55	74	4.17	305	17.19		
130	5.89	1839	83.29	102.55	- 103.55	102	5.75	407	22.94		
93	4.21	1932	87.50	103.55	- 104.55	118	6.65	525	29.59		
96	4.35	2028	91.85	104.55	- 105.55	143	8.06	668	37.66		
54	2.45	2082	94.29	105.55	- 106.55	134	7.55	802	45.21		
40	1.81	2122	96.11	106.55	- 107.55	137	7.72	939	52.93		
22	1.00	2144	97.10	107.55	- 108.55	139	7.84	1078	60.77		
23	1.04	2167	98.14	108.55	- 109.55	118	6.65	1196	67.42		
17	.77	2184	98.91	109.55	- 110.55	105	5.92	1301	73.34		
14	.63	2198	99.55	110.55	- 111.55	110	6.20	1411	79.54		
4	.18	2202	99.73	111.55	- 112.55	75	4.23	1486	83.77		
2	.09	2204	99.82	112.55	- 113.55	73	4.11	1559	87.88		
0	.00	2204	99.82	113.55	- 114.55	60	3.38	1619	91.26		
3	.14	2207	99.95	114.55	- 115.55	58	3.27	1677	94.53		
0	.00	2207	99.95	115.55	- 116.55	43	2.42	1720	96.96		
0	.00	2207	99.95	116.55	- 117.55	14	.79	1734	97.75		
1	.05	2208	100.00	117.55	- 118.55	14	.79	1748	98.53		
				118.55	- 119.55	10	.56	1750	99.10		
				119.55	- 120.55	8	.45	1766	99.55		
				120.55	- 121.55	2	.11	1768	99.66		
				121.55	- 122.55	2	.11	1770	99.77		
				122.55	- 123.55	2	.11	1772	99.89		
				123.55	- 124.55	0	.00	1772	99.89		
				124.55	- 125.55	0	.00	1772	99.89		
				125.55	- 126.55	0	.00	1772	99.89		
				126.55	- 127.55	0	.00	1772	99.89		
				127.55	- 128.55	0	.00	1772	99.89		
				128.55	- 129.55	1	.06	1773	99.94		
				129.55	- 130.55	0	.00	1773	99.94		
				130.55	- 131.55	0	.00	1773	99.94		
				131.55	- 132.55	1	.06	1774	100.00		



## (68) INTERPUPILLARY BREADTH

The distance between the two pupils is measured with a pupillometer.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
5.45	2.14	1ST	5.68	2.24	
5.53	2.18	2ND	5.76	2.27	
5.58	2.20	3RD	5.81	2.29	
5.66	2.23	5TH	5.88	2.31	
5.77	2.27	10TH	6.00	2.36	
5.86	2.31	15TH	6.08	2.39	
5.92	2.33	20TH	6.15	2.42	
5.98	2.35	25TH	6.21	2.44	
6.03	2.37	30TH	6.26	2.46	
6.08	2.39	35TH	6.31	2.48	
6.13	2.41	40TH	6.36	2.50	
6.17	2.43	45TH	6.41	2.52	
6.22	2.45	50TH	6.45	2.54	
6.26	2.47	55TH	6.50	2.56	
6.31	2.48	60TH	6.55	2.58	
6.36	2.50	65TH	6.60	2.60	
6.41	2.52	70TH	6.65	2.62	
6.47	2.55	75TH	6.71	2.64	
6.53	2.57	80TH	6.78	2.67	
6.61	2.60	85TH	6.86	2.70	
6.70	2.64	90TH	6.96	2.74	
6.85	2.70	95TH	7.10	2.80	
6.94	2.73	97TH	7.20	2.83	
7.01	2.76	98TH	7.27	2.86	
7.11	2.80	99TH	7.38	2.91	

# INTERPUPILLARY BREADTH

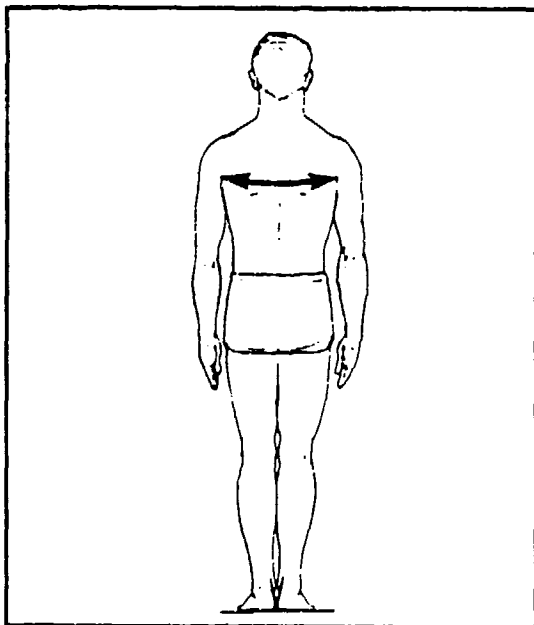
FEMALES			
CM		INCHES	
6.23	MEAN VALUE	2.45	
.00	SE (MEAN)	.00	
.36	STD DEVIATION	.14	
.00	SE (STD DEV)	.00	
5.20	MINIMUM	2.05	
7.60	MAXIMUM	2.99	
SYMMETRY---VETA I = .18			
KURTOSIS---VETA II = 2.97			
COEF. OF VARIATION = 5.8%			
NUMBER OF SUBJECTS = 2205			

MALES			
CM		INCHES	
6.47	MEAN VALUE	2.55	
.00	SE (MEAN)	.00	
.37	STD DEVIATION	.15	
.00	SE (STD DEV)	.00	
5.20	MINIMUM	2.05	
7.80	MAXIMUM	3.07	
SYMMETRY---VETA I = .20			
KURTOSIS---VETA II = 2.89			
COEF. OF VARIATION = 5.7%			
NUMBER OF SUBJECTS = 1771			

FREQUENCY TABLE															
FEMALES								MALES							
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct						
2	.09	2	.09	5.15 -	5.25	1	.06	1	.06						
10	.45	12	.54	5.25 -	5.35	0	.00	1	.06						
9	.41	21	.95	5.35 -	5.45	0	.00	1	.06						
30	1.36	51	2.31	5.45 -	5.55	4	.23	5	.28						
57	2.59	108	4.90	5.55 -	5.65	9	.51	14	.79						
74	3.36	182	8.25	5.65 -	5.75	20	1.13	34	1.92						
127	5.76	309	14.01	5.75 -	5.85	29	1.64	63	3.56						
182	8.25	491	22.27	5.85 -	5.95	55	3.11	118	6.66						
218	9.89	709	32.15	5.95 -	6.05	119	6.72	237	13.38						
219	9.93	928	42.09	6.05 -	6.15	125	7.06	362	20.44						
241	10.93	1169	53.02	6.15 -	6.25	167	9.43	529	29.87						
248	11.25	1417	64.26	6.25 -	6.35	178	10.05	707	39.92						
209	9.48	1626	73.74	6.35 -	6.45	175	9.88	882	49.80						
173	7.85	1799	81.59	6.45 -	6.55	181	10.22	1063	60.02						
132	5.99	1931	87.57	6.55 -	6.65	146	8.24	1209	68.27						
96	4.35	2027	91.93	6.65 -	6.75	157	8.87	1366	77.13						
66	2.99	2093	94.92	6.75 -	6.85	135	7.62	1501	84.75						
49	2.22	2142	97.14	6.85 -	6.95	99	5.59	1600	90.34						
32	1.45	2174	98.59	6.95 -	7.05	65	3.67	1665	94.01						
15	.68	2189	99.27	7.05 -	7.15	39	2.20	1704	96.22						
11	.50	2200	99.77	7.15 -	7.25	30	1.69	1734	97.91						
2	.09	2202	99.86	7.25 -	7.35	14	.79	1748	98.70						
1	.05	2203	99.91	7.35 -	7.45	11	.62	1759	99.32						
1	.05	2204	99.95	7.45 -	7.55	8	.45	1767	99.77						
1	.05	2205	100.00	7.55 -	7.65	3	.17	1770	99.94						
				7.65 -	7.75	0	.00	1770	99.94						
				7.75 -	7.85	1	.06	1771	100.00						

## (69) INTERSCYE I

The distance across the back between the right and left posterior-axillary-fold landmarks is measured with a tape. The tape is held on the skin surface except where the tape spans the hollow of the back. The subject stands erect looking straight ahead. The heels are together with the weight distributed equally on both feet. The shoulders and upper extremities are relaxed. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
29.39	11.57	1ST	33.23	13.08	
30.03	11.82	2ND	34.02	13.40	
30.43	11.98	3RD	34.52	13.59	
30.99	12.20	5TH	35.19	13.85	
31.85	12.54	10TH	36.21	14.26	
32.45	12.78	15TH	36.91	14.53	
32.93	12.96	20TH	37.48	14.75	
33.35	13.13	25TH	37.97	14.95	
33.73	13.28	30TH	38.42	15.13	
34.08	13.42	35TH	38.84	15.29	
34.42	13.55	40TH	39.24	15.45	
34.76	13.68	45TH	39.64	15.61	
35.09	13.82	50TH	40.04	15.76	
35.43	13.95	55TH	40.44	15.92	
35.78	14.09	60TH	40.85	16.08	
36.14	14.23	65TH	41.29	16.25	
36.52	14.38	70TH	41.75	16.44	
36.95	14.55	75TH	42.25	16.63	
37.42	14.73	80TH	42.82	16.86	
37.98	14.95	85TH	43.48	17.12	
38.70	15.24	90TH	44.32	17.45	
39.78	15.66	95TH	45.56	17.94	
40.49	15.94	97TH	46.35	18.25	
41.01	16.15	98TH	46.91	18.47	
41.83	16.47	99TH	47.77	18.81	

# INTERSCYE I

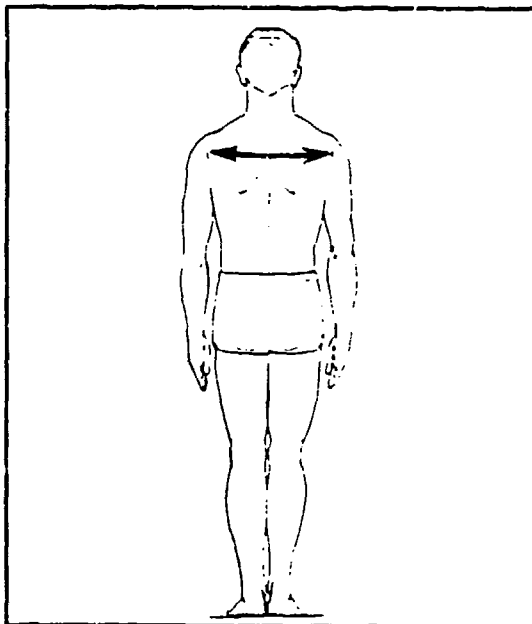
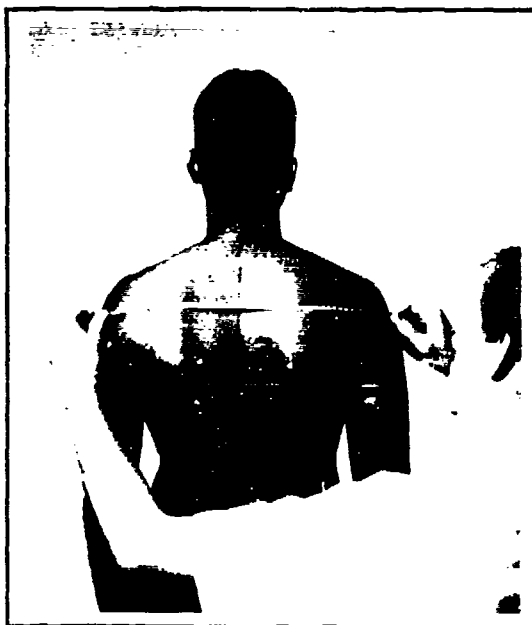
FEMALES			
CM		INCHES	
35.20	MEAN VALUE	13.86	
.06	SE(MEAN)	.02	
2.55	STD DEVIATION	1.04	
.04	SE(STD DEV)	.02	
26.60	MINIMUM	10.47	
44.50	MAXIMUM	17.52	
SYMMETRY---VETA I = .18			
KURTOSIS---VETA II = 2.96			
COEF. OF VARIATION = 7.5%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
40.15	MEAN VALUE	15.81	
.07	SE(MEAN)	.03	
3.14	STD DEVIATION	1.24	
.05	SE(STD DEV)	.02	
28.50	MINIMUM	11.22	
54.10	MAXIMUM	21.30	
SYMMETRY---VETA I = .15			
KURTOSIS---VETA II = 3.15			
COEF. OF VARIATION = 7.8%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
P	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	26.25 -	26.75						
2	.09	3	.14	26.75 -	27.25						
0	.00	3	.14	27.25 -	27.75						
0	.00	3	.14	27.75 -	28.25						
7	.32	10	.45	28.25 -	28.75	1	.06	1	.06		
8	.36	18	.82	28.75 -	29.25	0	.00	1	.06		
12	.54	30	1.36	29.25 -	29.75	0	.00	1	.06		
26	1.18	56	2.54	29.75 -	30.25	1	.06	2	.11		
39	1.77	95	4.30	30.25 -	30.75	1	.06	3	.17		
36	1.63	131	5.93	30.75 -	31.25	3	.17	6	.34		
66	2.99	197	8.92	31.25 -	31.75	1	.06	7	.39		
92	4.17	289	13.09	31.75 -	32.25	2	.11	9	.51		
94	4.26	383	17.35	32.25 -	32.75	4	.23	13	.73		
149	6.75	532	24.09	32.75 -	33.25	5	.28	18	1.01		
125	5.66	657	29.76	33.25 -	33.75	7	.39	25	1.41		
167	7.56	824	37.32	33.75 -	34.25	16	.90	41	2.31		
170	7.70	994	45.02	34.25 -	34.75	16	.90	57	3.21		
164	7.43	1158	52.45	34.75 -	35.25	27	1.52	84	4.74		
167	7.56	1325	60.01	35.25 -	35.75	42	2.37	126	7.10		
156	7.07	1481	67.07	35.75 -	36.25	61	3.44	187	10.54		
118	5.31	1599	72.42	36.25 -	36.75	62	3.49	249	14.04		
121	5.48	1720	77.90	36.75 -	37.25	75	4.23	324	18.26		
115	5.21	1835	83.11	37.25 -	37.75	87	4.90	411	23.17		
98	4.44	1933	87.55	37.75 -	38.25	88	4.96	499	28.13		
61	2.76	1994	90.31	38.25 -	38.75	1	5.13	590	33.26		
60	2.72	2054	93.03	38.75 -	39.25	114	6.43	704	39.68		
46	2.08	2100	95.11	39.25 -	39.75	122	6.88	826	46.56		
30	1.36	2130	96.47	39.75 -	40.25	105	5.92	931	52.48		
20	.91	2150	97.37	40.25 -	40.75	102	5.75	1033	58.23		
22	1.00	2172	98.37	40.75 -	41.25	114	6.43	1147	64.66		
13	.59	2185	98.96	41.25 -	41.75	99	5.58	1246	70.24		
12	.54	2197	99.50	41.75 -	42.25	94	5.30	1340	75.54		
6	.27	2203	99.77	42.25 -	42.75	73	4.11	1413	79.65		
2	.09	2205	99.86	42.75 -	43.25	71	4.00	1484	83.65		
1	.05	2206	99.91	43.25 -	43.75	55	3.10	1539	86.75		
1	.05	2207	99.95	43.75 -	44.25	63	3.55	1602	90.30		
1	.05	2208	100.00	44.25 -	44.75	41	2.31	1643	92.62		
				44.75 -	45.25	37	2.09	1680	94.70		
				45.25 -	45.75	21	1.18	1701	95.89		
				45.75 -	46.25	21	1.18	1722	97.07		
				46.25 -	46.75	12	.68	1734	97.75		
				46.75 -	47.25	11	.62	1745	98.37		
				47.25 -	47.75	11	.62	1756	98.99		
				47.75 -	48.25	6	.34	1762	99.32		
				48.25 -	48.75	4	.23	1766	99.55		
				48.75 -	49.25	3	.17	1769	99.72		
				49.25 -	49.75	2	.11	1771	99.83		
				49.75 -	50.25	2	.11	1773	99.94		
				50.25 -	50.75	0	.00	1773	99.94		
				50.75 -	51.25	0	.00	1773	99.94		
				51.25 -	51.75	0	.00	1773	99.94		
				51.75 -	52.25	0	.00	1773	99.94		
				52.25 -	52.75	0	.00	1773	99.94		
				52.75 -	53.25	0	.00	1773	99.94		
				53.25 -	53.75	0	.00	1773	99.94		
				53.75 -	54.25	1	.06	1774	100.00		

## (70) INTERSCYE II

The distance across the back between the right and left midscye landmarks is measured with a tape. The tape is held on the skin surface except where it spans the hollow of the back. The subject stands erect looking straight ahead. The heels are together with the weight distributed equally on both feet. The shoulders and upper extremities are relaxed. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
32.14	12.66	1ST	34.56	13.61	
32.69	12.87	2ND	35.29	13.89	
33.07	13.02	3RD	35.74	14.07	
33.61	13.23	5TH	36.34	14.31	
34.48	13.57	10TH	37.26	14.67	
35.08	13.81	15TH	37.89	14.92	
35.56	14.00	20TH	38.39	15.11	
35.98	14.17	25TH	38.82	15.28	
36.35	14.31	30TH	39.21	15.44	
36.70	14.45	35TH	39.58	15.58	
37.02	14.58	40TH	39.94	15.72	
37.33	14.70	45TH	40.28	15.86	
37.64	14.82	50TH	40.62	15.99	
37.94	14.94	55TH	40.97	16.13	
38.25	15.06	60TH	41.33	16.27	
38.57	15.18	65TH	41.70	16.42	
38.90	15.31	70TH	42.09	16.57	
39.25	15.45	75TH	42.52	16.74	
39.65	15.61	80TH	43.00	16.93	
40.10	15.79	85TH	43.57	17.15	
40.69	16.02	90TH	44.28	17.43	
41.57	16.36	95TH	45.32	17.84	
42.16	16.60	97TH	45.97	18.10	
42.61	16.77	98TH	46.44	18.28	
43.35	17.07	99TH	47.15	18.56	

# INTERSCYE II

## FEMALES

<u>CM</u>		<u>INCHES</u>
37.62	MEAN VALUE	14.81
.05	SE (MEAN)	.02
2.41	STD DEVIATION	.95
.04	SE (STD DEV)	.00
28.40	MINIMUM	11.18
47.00	MAXIMUM	18.50

SYMMETRY---VETA I = .03  
 KURTOSIS---VETA II = 3.04  
 COEF. OF VARIATION = 6.4%  
 NUMBER OF SUBJECTS = 2208

## MALES

<u>CM</u>		<u>INCHES</u>
40.68	MEAN VALUE	16.02
.06	SE (MEAN)	.03
2.74	STD DEVIATION	1.08
.05	SE (STD DEV)	.02
31.30	MINIMUM	12.32
50.50	MAXIMUM	19.88

SYMMETRY---VETA I = .09  
 KURTOSIS---VETA II = 3.02  
 COEF. OF VARIATION = 6.7%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

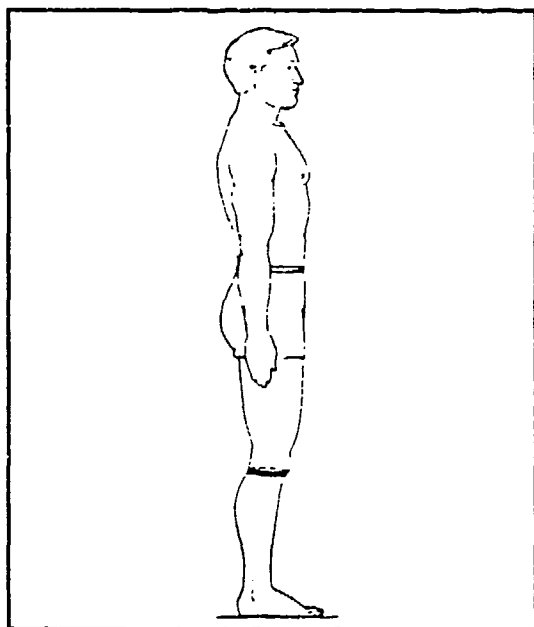
<u>F</u>	<u>FPct</u>	<u>CumF</u>	<u>CumFPct</u>
1	.05	1	.05
0	.00	1	.05
0	.00	1	.05
0	.00	1	.05
1	.05	2	.09
4	.18	6	.27
4	.18	10	.45
13	.59	23	1.04
26	1.18	49	2.22
36	1.63	85	3.85
38	1.72	123	5.57
65	2.94	188	8.51
73	3.31	261	11.82
98	4.44	359	16.26
107	4.85	466	21.11
156	7.07	622	28.17
168	7.61	790	35.78
184	8.33	974	44.11
167	7.56	1141	51.68
183	8.29	1324	59.96
187	8.47	1511	68.43
157	7.11	1668	75.54
125	5.71	1794	81.25
115	5.21	1909	86.46
94	4.26	2003	90.72
67	3.03	2070	93.75
37	1.68	2107	95.43
39	1.77	2146	97.19
24	1.09	2170	98.28
15	.68	2185	98.96
8	.36	2193	99.32
9	.41	2202	99.73
1	.05	2203	99.77
2	.09	2205	99.86
1	.05	2206	99.91
0	.00	2206	99.91
1	.05	2207	99.95
1	.05	2208	100.00

### MALES

<u>F</u>	<u>FPct</u>	<u>CumF</u>	<u>CumFPct</u>
1	.06	1	.06
2	.11	3	.17
1	.06	4	.23
5	.28	9	.51
2	.11	11	.62
4	.23	15	.85
6	.34	21	1.18
13	.73	34	1.92
12	.68	46	2.59
30	1.69	76	4.28
40	2.25	116	6.54
65	3.66	181	10.20
72	4.06	253	14.26
92	5.19	345	19.45
93	5.24	438	24.69
102	5.75	540	30.44
130	7.33	670	37.77
108	6.09	778	43.86
127	7.16	905	51.01
143	8.06	1048	59.08
113	6.37	1161	65.45
117	6.60	1278	72.04
84	4.74	1362	76.78
99	5.58	1461	82.36
87	4.90	1548	87.26
47	2.65	1595	89.91
52	2.93	1647	92.84
39	2.20	1686	95.04
24	1.35	1710	96.39
23	1.30	1733	97.69
14	.79	1747	98.48
11	.62	1758	99.10
7	.39	1765	99.49
3	.17	1768	99.66
1	.06	1769	99.72
2	.11	1771	99.83
2	.11	1773	99.94
0	.00	1773	99.94
1	.06	1774	100.00

## (71) KNEE CIRCUMFERENCE

The horizontal circumference of the right knee at the level of the midpatella landmark at the center of the knee is measured with a tape. The subject stands erect with the feet about 10 cm apart and the weight distributed equally on both feet.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
31.58	12.43	1ST	33.70	13.27
32.11	12.64	2ND	34.23	13.48
32.46	12.78	3RD	34.57	13.61
32.93	12.97	5TH	35.05	13.80
33.67	13.26	10TH	35.82	14.10
34.18	13.46	15TH	36.34	14.31
34.58	13.62	20TH	36.76	14.47
34.93	13.75	25TH	37.12	14.61
35.25	13.88	30TH	37.45	14.74
35.54	13.99	35TH	37.75	14.86
35.83	14.11	40TH	38.04	14.98
36.10	14.21	45TH	38.32	15.09
36.38	14.32	50TH	38.59	15.19
36.66	14.43	55TH	38.87	15.30
36.95	14.55	60TH	39.15	15.41
37.25	14.67	65TH	39.45	15.53
37.58	14.79	70TH	39.75	15.65
37.94	14.94	75TH	40.09	15.78
38.36	15.10	80TH	40.47	15.93
38.86	15.30	85TH	40.92	16.11
39.53	15.56	90TH	41.49	16.33
40.60	15.99	95TH	42.36	16.68
41.37	16.29	97TH	42.95	16.91
41.97	16.52	98TH	43.39	17.08
42.99	16.93	99TH	44.13	17.37

# KNEE CIRCUMFERENCE

FEMALES			
CM		INCHES	
36.52	MEAN VALUE	14.38	
.05	SE (MEAN)	.02	
2.33	STD DEVIATION	.92	
.04	SE (STD DEV)	.00	
30.20	MINIMUM	11.89	
46.10	MAXIMUM	18.15	
SYMMETRY---VETA I = .42			
KURTOSIS---VETA II = 3.51			
COEF. OF VARIATION = 6.4%			
NUMBER OF SUBJECTS = 2208			

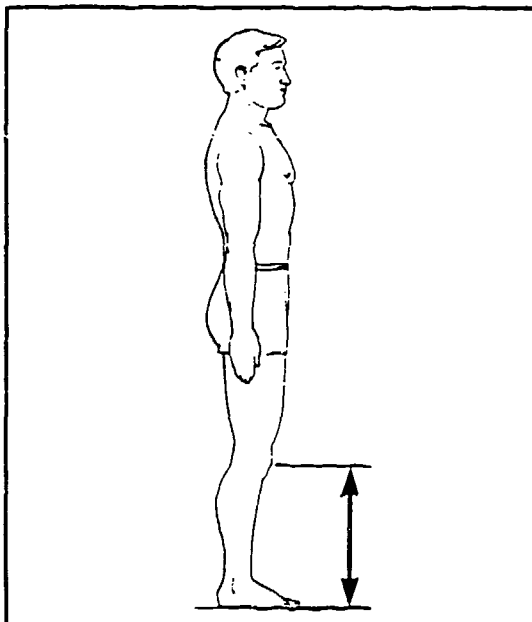
MALES			
CM		INCHES	
38.64	MEAN VALUE	15.21	
.05	SE (MEAN)	.02	
2.21	STD DEVIATION	.87	
.04	SE (STD DEV)	.00	
31.70	MINIMUM	12.48	
46.40	MAXIMUM	18.27	
SYMMETRY---VETA I = .13			
KURTOSIS---VETA II = 3.00			
COEF. OF VARIATION = 5.7%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	29.75 -	30.25	1	.06	1	.06		
8	.36	9	.41	30.25 -	30.75	1	.06	2	.11		
8	.36	17	.77	30.75 -	31.25	4	.23	6	.34		
10	.45	27	1.22	31.25 -	31.75	2	.11	8	.45		
20	.91	47	2.13	31.75 -	32.25	10	.56	18	1.01		
37	1.68	84	3.80	32.25 -	32.75	18	1.01	36	2.03		
63	2.85	147	6.66	32.75 -	33.25	30	1.69	66	3.72		
91	4.12	238	10.78	33.25 -	33.75	43	2.42	109	6.14		
122	5.53	360	16.30	33.75 -	34.25	48	2.71	157	8.85		
132	5.98	492	22.28	34.25 -	34.75	81	4.57	238	13.42		
184	8.33	676	30.62	34.75 -	35.25	101	5.69	339	19.11		
190	8.61	866	39.22	35.25 -	35.75	143	8.06	482	27.17		
166	7.52	1032	46.74	35.75 -	36.25	163	9.19	645	36.36		
191	8.65	1223	55.39	36.25 -	36.75	151	8.51	796	44.87		
210	9.51	1433	64.90	36.75 -	37.25	135	7.61	931	52.48		
181	8.20	1614	73.10	37.25 -	37.75	164	9.24	1095	61.72		
133	6.02	1747	79.12	37.75 -	38.25	141	7.95	1236	69.67		
115	5.21	1862	84.33	38.25 -	38.75	126	7.10	1362	76.78		
81	3.67	1943	88.00	38.75 -	39.25	109	6.14	1471	82.92		
69	3.13	2012	91.12	39.25 -	39.75	83	4.68	1554	87.60		
54	2.45	2066	93.57	39.75 -	40.25	78	4.40	1632	92.00		
44	1.99	2110	95.56	40.25 -	40.75	48	2.71	1680	94.70		
30	1.36	2140	96.92	40.75 -	41.25	34	1.92	1714	96.62		
17	.77	2157	97.69	41.25 -	41.75	18	1.01	1732	97.63		
16	.72	2173	98.41	41.75 -	42.25	18	1.01	1750	98.65		
8	.36	2181	98.78	42.25 -	42.75	7	.39	1757	99.04		
9	.41	2190	99.18	42.75 -	43.25	12	.68	1769	99.72		
7	.32	2197	99.50	43.25 -	43.75	1	.06	1770	99.77		
6	.27	2203	99.77	43.75 -	44.25	2	.11	1772	99.89		
1	.05	2204	99.82	44.25 -	44.75	1	.06	1773	99.94		
1	.05	2205	99.86	44.75 -	45.25	1	.06	1774	100.00		
0	.00	2205	99.86	45.25 -	45.75						
3	.14	2208	100.00	45.75 -	46.25						
				46.25 -	46.75						



## (72) KNEE HEIGHT, MIDPATELLA

The vertical distance between a standing surface and the midpatella landmark at the center of the right knee is measured with an anthropometer. The subject stands erect with the heels together and the weight distributed equally on both feet.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
39.94	15.73	1ST	44.30	17.44
40.64	16.00	2ND	45.05	17.74
41.07	16.17	3RD	45.50	17.91
41.67	16.40	5TH	46.10	18.15
42.58	16.76	10TH	47.01	18.51
43.19	17.00	15TH	47.63	18.75
43.68	17.20	20TH	48.13	18.95
44.10	17.36	25TH	48.56	19.12
44.48	17.51	30TH	48.96	19.27
44.83	17.65	35TH	49.33	19.42
45.16	17.78	40TH	49.69	19.56
45.48	17.91	45TH	50.04	19.70
45.81	18.03	50TH	50.39	19.84
46.13	18.16	55TH	50.75	19.98
46.46	18.29	60TH	51.11	20.12
46.81	18.43	65TH	51.49	20.27
47.17	18.57	70TH	51.90	20.43
47.57	18.73	75TH	52.34	20.61
48.02	18.91	80TH	52.84	20.80
48.55	19.11	85TH	53.41	21.03
49.23	19.38	90TH	54.13	21.31
50.25	19.78	95TH	55.16	21.72
50.94	20.05	97TH	55.78	21.96
51.45	20.26	98TH	56.21	22.13
52.27	20.58	99TH	56.81	22.37

# KNEE HEIGHT, MIDPATELLA

## FEMALES

CM		INCHES
45.87	MEAN VALUE	18.06
.06	SE(MEAN)	.02
2.61	STD DEVIATION	1.03
.04	SE(STD DEV)	.02
35.80	MINIMUM	14.09
58.40	MAXIMUM	22.99

SYMMETRY---VETA I = .15  
 KURTOSIS---VETA II = 3.18  
 COEF. OF VARIATION = 5.7%  
 NUMBER OF SUBJECTS = 2208

## MALES

CM		INCHES
50.48	MEAN VALUE	19.88
.07	SE(MEAN)	.03
2.76	STD DEVIATION	1.09
.05	SE(STD DEV)	.02
40.60	MINIMUM	15.98
62.00	MAXIMUM	24.41

SYMMETRY---VETA I = .15  
 KURTOSIS---VETA II = 3.04  
 COEF. OF VARIATION = 5.5%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
1	.05	1	.05
0	.00	1	.05
0	.00	1	.05
0	.00	1	.05
1	.05	2	.09
1	.05	3	.14
6	.27	9	.41
8	.36	17	.77
13	.59	30	1.36
20	.91	50	2.26
25	1.13	75	3.40
41	1.86	116	5.25
9	2.22	165	7.47
71	3.22	236	10.69
106	4.80	342	15.49
111	5.03	453	20.52
143	6.48	596	26.99
172	7.79	768	34.78
157	7.11	925	41.89
166	7.52	1091	49.41
169	7.65	1260	57.07
146	6.61	1406	63.68
149	6.75	1555	70.43
139	6.30	1694	76.72
126	5.71	1820	82.43
94	4.26	1914	86.68
75	3.40	1989	90.08
54	2.45	2043	92.53
56	2.54	2099	95.06
34	1.54	2133	96.60
27	1.22	2160	97.83
17	.77	2177	98.60
7	.32	2184	98.91
11	.50	2195	99.41
5	.23	2200	99.64
5	.23	2205	99.86
2	.09	2207	99.95
0	.00	2207	99.95
0	.00	2207	99.95
0	.00	2207	99.95
0	.00	2207	99.95
0	.00	2207	99.95
0	.00	2207	99.95
1	.05	2208	100.00

### CENTIMETERS

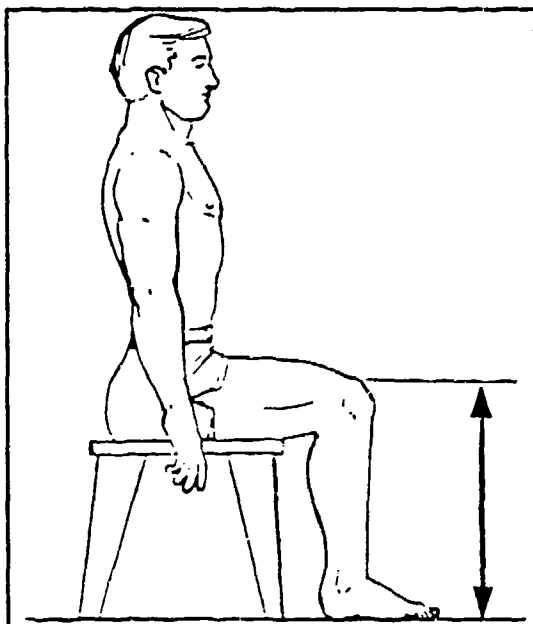
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### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
0	.00	1	.06
0	.00	1	.06
0	.00	1	.06
0	.00	1	.06
3	.17	4	.23
4	.23	8	.45
8	.45	16	.90
10	.56	26	1.47
18	1.01	44	2.48
23	1.30	67	3.78
29	1.63	96	5.41
40	2.25	136	7.67
71	4.00	207	11.67
72	4.06	279	15.73
87	4.90	366	20.63
121	6.82	487	27.45
123	6.93	610	34.39
122	6.88	732	41.26
120	6.76	852	48.03
135	7.61	987	55.64
114	6.43	1101	62.06
114	6.43	1215	68.49
93	5.24	1308	73.73
86	4.85	1394	78.58
89	5.02	1483	83.60
63	3.55	1546	87.15
62	3.49	1608	90.64
51	2.87	1659	93.52
36	2.03	1695	95.55
26	1.47	1721	97.01
20	1.13	1741	98.14
14	.79	1755	98.93
7	.39	1762	99.32
4	.23	1766	99.55
1	.06	1767	99.61
3	.17	1770	99.77
2	.11	1772	99.89
0	.00	1772	99.89
0	.00	1772	99.89
0	.00	1772	99.89
1	.06	1773	99.94
0	.00	1773	99.94
1	.06	1774	100.00

## (73) KNEE HEIGHT, SITTING

The vertical distance between a footrest surface and the suprapatella landmark at the top of the right knee (located and drawn while the subject stands) is measured with an anthropometer. The subject sits with the thighs parallel, the knees flexed 90 degrees, and the feet in line with the thighs.



### THE PERCENTILES

#### FEMALES

CM INCHES

45.47 17.90

46.30 18.23

46.78 18.42

47.40 18.66

48.30 19.02

48.89 19.25

49.35 19.43

49.76 19.59

50.12 19.73

50.46 19.97

50.79 20.00

51.11 20.12

51.43 20.25

51.76 20.38

52.10 20.51

52.46 20.65

52.84 20.80

53.26 20.97

53.73 21.15

54.28 21.37

54.99 21.65

56.02 22.05

56.66 22.31

57.12 22.49

57.78 22.75

#### MALES

CM INCHES

49.66 19.55

50.38 19.84

50.83 20.01

51.44 20.25

52.36 20.62

53.00 20.86

53.50 21.06

53.95 21.24

54.35 21.40

54.73 21.55

55.09 21.69

55.44 21.83

55.80 21.97

56.16 22.11

56.52 22.25

56.90 22.40

57.31 22.56

57.75 22.74

58.24 22.93

58.82 23.16

59.54 23.44

60.57 23.85

61.22 24.10

61.67 24.28

62.34 24.54

# KNEE HEIGHT, SITTING

## FEMALES

CM		INCHES
51.54	MEAN VALUE	20.29
.06	SE(MEAN)	.02
2.63	STD DEVIATION	1.04
.04	SE(STD DEV)	.02
40.60	MINIMUM	15.98
63.30	MAXIMUM	24.92

SYMMETRY---VETA I = .16  
 KURTOSIS---VETA II = 3.29  
 COEF. OF VARIATION = 5.1%  
 NUMBER OF SUBJECTS = 2208

## MALES

CM		INCHES
55.88	MEAN VALUE	22.00
.07	SE(MEAN)	.03
2.79	STD DEVIATION	1.10
.05	SE(STD DEV)	.02
45.40	MINIMUM	17.87
67.50	MAXIMUM	26.57

SYMMETRY---VETA I = .14  
 KURTOSIS---VETA II = 3.14  
 COEF. OF VARIATION = 5.0%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
1	.05	1	.05
0	.00	1	.05
0	.00	1	.05
0	.00	1	.05
0	.00	1	.05
1	.05	2	.09
0	.00	2	.09
2	.09	4	.18
4	.18	8	.36
7	.32	15	.68
15	.68	30	1.36
14	.63	44	1.99
17	.77	61	2.76
34	1.54	95	4.30
54	2.45	149	6.75
62	2.81	211	9.56
103	4.66	314	14.22
108	4.89	422	19.11
118	5.34	540	24.46
155	7.02	695	31.48
168	7.61	863	39.09
169	7.65	1032	46.74
175	7.93	1207	54.66
168	7.61	1375	62.27
157	7.11	1532	69.38
131	5.93	1663	75.32
125	5.66	1788	80.98
82	3.71	1870	84.69
75	3.40	1945	88.09
74	3.35	2019	91.44
50	2.26	2069	93.70
48	2.17	2117	95.88
34	1.54	2151	97.42
15	.68	2166	98.10
20	.91	2186	99.00
6	.27	2192	99.28
6	.27	2198	99.55
2	.09	2200	99.64
2	.09	2202	99.73
2	.09	2204	99.82
1	.05	2205	99.86
1	.05	2206	99.91
1	.05	2207	99.95
0	.00	2207	99.95
0	.00	2207	99.95
0	.00	2207	99.95
1	.05	2208	100.00

### CENTIMETERS

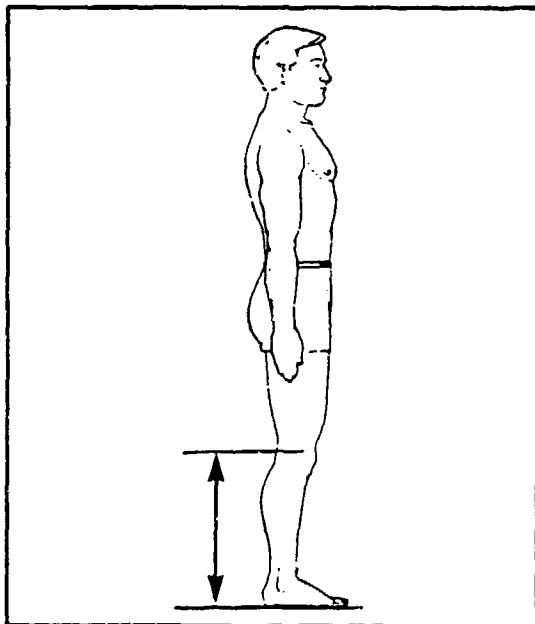
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### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
0	.00	1	.06
0	.00	1	.06
2	.11	3	.17
0	.00	3	.17
1	.06	4	.23
2	.11	6	.34
4	.23	10	.56
9	.51	19	1.07
12	.68	31	1.75
20	1.13	51	2.87
23	1.30	74	4.17
36	2.03	110	6.20
57	3.21	167	9.41
59	3.33	226	12.74
69	3.89	295	16.63
96	5.41	391	22.04
112	6.31	503	28.35
133	7.50	636	35.85
124	6.99	760	42.84
130	7.33	890	50.17
118	6.65	1008	56.82
102	5.75	1110	62.57
117	6.60	1227	69.17
91	5.13	1318	74.30
95	5.36	1413	79.65
85	4.79	1498	84.44
68	3.83	1566	88.28
50	2.82	1616	91.09
57	3.21	1673	94.31
29	1.63	1702	95.94
18	1.01	1720	96.96
23	1.30	1743	98.25
12	.68	1755	98.93
6	.34	1761	99.27
2	.11	1763	99.38
4	.23	1767	99.61
3	.17	1770	99.77
1	.06	1771	99.83
1	.06	1772	99.89
0	.00	1772	99.89
0	.00	1772	99.89
0	.00	1772	99.89
1	.06	1773	99.94
1	.06	1774	100.00

## (74) LATERAL FEMORAL EPICONDYLE HEIGHT

The vertical distance between a standing surface and the standing lateral-femoral-epicondyle landmark on the outside of the right knee is measured with an anthropometer. The subject stands erect with the heels together and the weight distributed equally on both feet.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
40.59	15.98	1ST	44.31	17.45	
41.23	16.23	2ND	45.01	17.72	
41.63	16.39	3RD	45.44	17.89	
42.18	16.60	5TH	46.01	18.12	
43.01	16.93	10TH	46.88	18.46	
43.58	17.16	15TH	47.47	18.69	
44.03	17.33	20TH	47.95	18.88	
44.42	17.49	25TH	48.36	19.04	
44.78	17.63	30TH	48.73	19.19	
45.11	17.76	35TH	49.08	19.32	
45.42	17.88	40TH	49.42	19.46	
45.73	18.00	45TH	49.74	19.58	
46.04	18.13	50TH	50.07	19.71	
46.35	18.25	55TH	50.41	19.84	
46.66	18.37	60TH	50.74	19.98	
46.99	18.50	65TH	51.10	20.12	
47.35	18.64	70TH	51.48	20.27	
47.73	18.79	75TH	51.89	20.43	
48.16	18.96	80TH	52.35	20.61	
48.67	19.16	85TH	52.89	20.82	
49.32	19.42	90TH	53.57	21.09	
50.30	19.80	95TH	54.57	21.48	
50.94	20.06	97TH	55.20	21.73	
51.42	20.24	98TH	55.64	21.91	
52.16	20.54	99TH	56.31	22.17	

# LATERAL FEMORAL EPICONDYLE HEIGHT

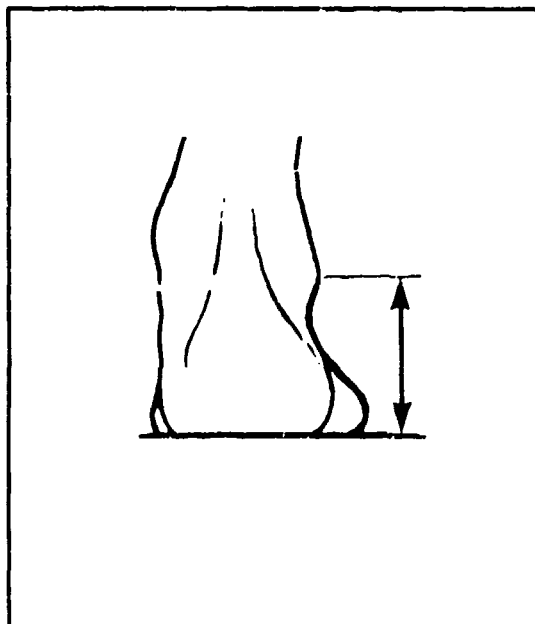
FEMALES			
CM		INCHES	
46.11	MEAN VALUE	18.15	
.05	SE(MEAN)	.02	
2.47	STD DEVIATION	.97	
.04	SE(STD DEV)	.00	
35.90	MINIMUM	14.13	
57.10	MAXIMUM	22.48	
SYMMETRY---VETA I = .16			
KURTOSIS---VETA II = 3.18			
COEF. OF VARIATION = 5.4%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
50.15	MEAN VALUE	19.75	
.06	SE(MEAN)	.02	
2.63	STD DEVIATION	1.03	
.04	SE(STD DEV)	.02	
39.80	MINIMUM	15.67	
62.60	MAXIMUM	24.65	
SYMMETRY---VETA I = .19			
KURTOSIS---VETA II = 3.33			
COEF. OF VARIATION = 5.2%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	35.75 -	36.25						
0	.00	1	.05	36.25 -	36.75						
0	.00	1	.05	36.75 -	37.25						
0	.00	1	.05	37.25 -	37.75						
1	.05	2	.09	37.75 -	38.25						
0	.00	2	.09	38.25 -	38.75						
1	.05	3	.14	38.75 -	39.25						
2	.09	5	.23	39.25 -	39.75						
11	.50	16	.72	39.75 -	40.25	1	.06	1	.06		
11	.50	27	1.22	40.25 -	40.75	0	.00	1	.06		
16	.72	43	1.95	40.75 -	41.25	0	.00	1	.06		
27	1.22	70	3.17	41.25 -	41.75	0	.00	1	.06		
44	1.99	114	5.16	41.75 -	42.25	1	.06	2	.11		
63	2.85	177	8.02	42.25 -	42.75	0	.00	2	.11		
85	3.85	262	11.87	42.75 -	43.25	4	.23	6	.34		
117	5.30	379	17.16	43.25 -	43.75	4	.23	10	.56		
123	5.57	502	22.74	43.75 -	44.25	7	.39	17	.96		
163	7.38	665	30.12	44.25 -	44.75	9	.51	26	1.47		
162	7.34	827	37.45	44.75 -	45.25	18	1.01	44	2.48		
169	7.65	996	45.11	45.25 -	45.75	24	1.35	68	3.83		
187	8.47	1183	53.58	45.75 -	46.25	34	1.92	102	5.75		
159	7.20	1342	60.78	46.25 -	46.75	50	2.82	152	8.57		
166	7.52	1508	68.30	46.75 -	47.25	77	4.34	229	12.91		
152	6.88	1660	75.18	47.25 -	47.75	81	4.57	310	17.47		
128	5.80	1788	80.98	47.75 -	48.25	115	6.48	425	23.96		
108	4.89	1896	85.87	48.25 -	48.75	122	6.88	547	30.83		
79	3.58	1975	89.45	48.75 -	49.25	118	6.65	665	37.49		
69	3.13	2044	92.57	49.25 -	49.75	135	7.61	800	45.10		
51	2.31	2095	94.88	49.75 -	50.25	136	7.67	936	52.76		
41	1.86	2136	96.74	50.25 -	50.75	138	7.78	1074	60.54		
22	1.00	2158	97.74	50.75 -	51.25	113	6.37	1187	66.91		
18	.82	2176	98.55	51.25 -	51.75	115	6.48	1302	73.39		
11	.50	2187	99.05	51.75 -	52.25	88	4.96	1390	78.35		
7	.32	2194	99.37	52.25 -	52.75	95	5.36	1485	83.71		
6	.27	2200	99.64	52.75 -	53.25	68	3.83	1553	87.54		
5	.23	2205	99.86	53.25 -	53.75	58	3.27	1611	90.81		
0	.00	2205	99.86	53.75 -	54.25	49	2.76	1660	93.57		
1	.05	2206	99.91	54.25 -	54.75	40	2.25	1700	95.83		
1	.05	2207	99.95	54.75 -	55.25	28	1.58	1728	97.41		
0	.00	2207	99.95	55.25 -	55.75	19	1.07	1747	98.48		
0	.00	2207	99.95	55.75 -	56.25	7	.39	1754	98.87		
0	.00	2207	99.95	56.25 -	56.75	7	.39	1761	99.27		
1	.05	2208	100.00	56.75 -	57.25	3	.17	1764	99.44		
				57.25 -	57.75	3	.17	1767	99.61		
				57.75 -	58.25	2	.11	1769	99.72		
				58.25 -	58.75	1	.06	1770	99.77		
				58.75 -	59.25	2	.11	1772	99.89		
				59.25 -	59.75	0	.00	1772	99.89		
				59.75 -	60.25	0	.00	1772	99.89		
				60.25 -	60.75	0	.00	1772	99.89		
				60.75 -	61.25	0	.00	1772	99.89		
				61.25 -	61.75	1	.06	1773	99.94		
				61.75 -	62.25	0	.00	1773	99.94		
				62.25 -	62.75	1	.06	1774	100.00		

## (75) LATERAL MALLEOLUS HEIGHT

The vertical distance between a standing surface and the lateral malleolus landmark on the outside of the right ankle is measured with a modified sliding caliper. The subject stands erect with the heels together and the weight distributed equally on both feet.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
4.96	1.95	1ST	5.48	2.16
5.06	1.99	2ND	5.62	2.21
5.13	2.02	3RD	5.71	2.25
5.23	2.06	5TH	5.84	2.30
5.39	2.12	10TH	6.02	2.37
5.51	2.17	15TH	6.15	2.42
5.61	2.21	20TH	6.25	2.46
5.69	2.24	25TH	6.34	2.50
5.77	2.27	30TH	6.42	2.53
5.84	2.30	35TH	6.49	2.55
5.91	2.33	40TH	6.56	2.58
5.97	2.35	45TH	6.62	2.61
6.04	2.38	50TH	6.69	2.63
6.11	2.40	55TH	6.76	2.66
6.18	2.43	60TH	6.82	2.69
6.25	2.46	65TH	6.90	2.71
6.33	2.49	70TH	6.97	2.74
6.41	2.52	75TH	7.05	2.78
6.50	2.56	80TH	7.15	2.81
6.61	2.60	85TH	7.26	2.86
6.76	2.66	90TH	7.41	2.92
6.97	2.74	95TH	7.61	3.01
7.11	2.80	97TH	7.79	3.07
7.22	2.84	98TH	7.91	3.12
7.39	2.91	99TH	8.11	3.19

# LATERAL MALLEOLUS HEIGHT

FEMALES			
CM		INCHES	
6.06	MEAN VALUE	2.39	
.00	SE (MEAN)	.00	
.53	STD DEVIATION	.21	
.00	SE (STD DEV)	.00	
4.20	MINIMUM	1.65	
8.30	MAXIMUM	3.27	
SYMMETRY---VETA I = .23			
KURTOSIS---VETA II = 3.14			
COEF. OF VARIATION = 8.8%			
NUMBER OF SUBJECTS = 2208			

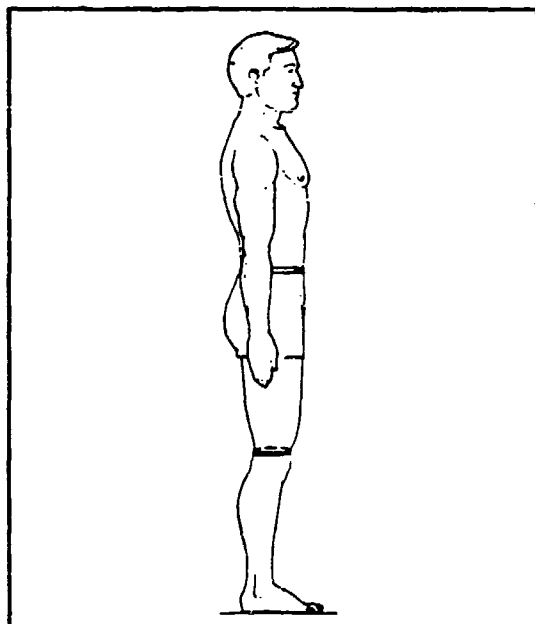
MALES			
CM		INCHES	
6.71	MEAN VALUE	2.64	
.00	SE (MEAN)	.00	
.55	STD DEVIATION	.22	
.00	SE (STD DEV)	.00	
5.20	MINIMUM	2.05	
9.30	MAXIMUM	3.66	
SYMMETRY---VETA I = .25			
KURTOSIS---VETA II = 3.38			
COEF. OF VARIATION = 8.1%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE									
FEMALES					MALES				
F	FPct	CumF	CumFPct	CENTIMETERS	F	FPct	CumF	CumFPct	
1	.05	1	.05	4.15 - 4.25					
1	.05	2	.09	4.25 - 4.35					
1	.05	3	.14	4.35 - 4.45					
1	.05	4	.18	4.45 - 4.55					
1	.05	5	.23	4.55 - 4.65					
3	.14	8	.36	4.65 - 4.75					
3	.14	11	.50	4.75 - 4.85					
9	.41	20	.91	4.85 - 4.95					
25	1.13	45	2.04	4.95 - 5.05					
24	1.09	69	3.13	5.05 - 5.15					
52	2.36	121	5.48	5.15 - 5.25					
59	2.67	180	8.15	5.25 - 5.35	4	.23	4	.23	
82	3.71	262	11.87	5.35 - 5.45	2	.11	6	.34	
109	4.94	371	16.80	5.45 - 5.55	7	.39	13	.73	
139	6.30	510	23.10	5.55 - 5.65	12	.68	25	1.41	
129	5.84	639	28.94	5.65 - 5.75	19	1.07	44	2.48	
159	7.20	798	36.14	5.75 - 5.85	20	1.13	64	3.61	
159	7.20	957	43.34	5.85 - 5.95	21	1.18	85	4.79	
154	6.97	1111	50.32	5.95 - 6.05	51	2.87	136	7.67	
147	6.66	1258	56.97	6.05 - 6.15	61	3.44	197	11.10	
191	8.65	1449	65.63	6.15 - 6.25	81	4.57	278	15.67	
140	6.34	1589	71.97	6.25 - 6.35	81	4.57	359	20.24	
116	5.25	1705	77.22	6.35 - 6.45	90	5.07	449	25.31	
122	5.53	1827	82.74	6.45 - 6.55	108	6.09	557	31.40	
73	3.31	1900	86.05	6.55 - 6.65	140	7.89	697	39.29	
84	3.80	1984	89.86	6.65 - 6.75	123	6.93	820	46.22	
59	2.67	2043	92.53	6.75 - 6.85	139	7.84	959	54.06	
51	2.31	2094	94.84	6.85 - 6.95	126	7.10	1085	61.16	
35	1.59	2129	96.42	6.95 - 7.05	150	8.46	1235	69.62	
20	.91	2149	97.33	7.05 - 7.15	118	6.65	1353	76.27	
21	.95	2170	98.28	7.15 - 7.25	81	4.57	1434	80.83	
13	.59	2183	98.87	7.25 - 7.35	69	3.89	1503	84.72	
9	.41	2192	99.28	7.35 - 7.45	60	3.38	1563	88.11	
7	.32	2199	99.59	7.45 - 7.55	55	3.10	1618	91.21	
4	.18	2203	99.77	7.55 - 7.65	42	2.37	1660	93.57	
1	.05	2204	99.82	7.65 - 7.75	28	1.58	1688	95.15	
1	.05	2205	99.86	7.75 - 7.85	16	.90	1704	96.05	
0	.00	2205	99.86	7.85 - 7.95	23	1.30	1727	97.35	
1	.05	2206	99.91	7.95 - 8.05	16	.90	1743	98.25	
1	.05	2207	99.95	8.05 - 8.15	9	.51	1752	98.76	
0	.00	2207	99.95	8.15 - 8.25	10	.56	1762	99.32	
1	.05	2208	100.00	8.25 - 8.35	5	.28	1767	99.61	
				8.35 - 8.45	0	.00	1767	99.61	
				8.45 - 8.55	3	.17	1770	99.77	
				8.55 - 8.65	1	.06	1771	99.83	
				8.65 - 8.75	1	.06	1772	99.89	
				8.75 - 8.85	0	.00	1772	99.89	
				8.85 - 8.95	1	.06	1773	99.94	
				8.95 - 9.05	0	.00	1773	99.94	
				9.05 - 9.15	0	.00	1773	99.94	
				9.15 - 9.25	0	.00	1773	99.94	
				9.25 - 9.35	1	.06	1774	100.00	



## (76) LOWER THIGH CIRCUMFERENCE

The horizontal circumference of the right thigh at the level of the suprapatella landmark at the top of the knee is measured with a tape. The subject stands erect with the feet about 10 cm apart and the weight distributed equally on both feet.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
31.93	12.57	1ST	33.09	13.03	
32.52	12.80	2ND	33.75	13.29	
32.91	12.96	3RD	34.19	13.46	
33.46	13.17	5TH	34.78	13.69	
34.34	13.52	10TH	35.73	14.07	
34.95	13.76	15TH	36.38	14.32	
35.44	13.95	20TH	36.89	14.53	
35.87	14.12	25TH	37.34	14.70	
36.25	14.27	30TH	37.75	14.86	
36.61	14.41	35TH	38.12	15.01	
36.96	14.55	40TH	38.47	15.15	
37.29	14.68	45TH	38.82	15.28	
37.63	14.81	50TH	39.16	15.42	
37.96	14.95	55TH	39.50	15.55	
38.31	15.08	60TH	39.84	15.69	
38.67	15.22	65TH	40.20	15.83	
39.05	15.38	70TH	40.58	15.98	
39.48	15.54	75TH	40.99	16.14	
39.97	15.73	80TH	41.45	16.32	
40.55	15.96	85TH	41.98	16.53	
41.31	16.26	90TH	42.67	16.80	
42.52	16.74	95TH	43.69	17.20	
43.37	17.07	97TH	44.38	17.47	
44.03	17.33	98TH	44.88	17.67	
45.14	17.77	99TH	45.70	17.99	

# LOWER THIGH CIRCUMFERENCE

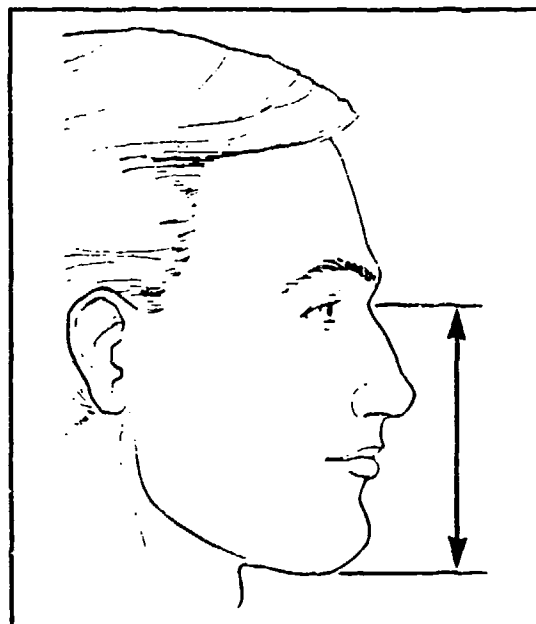
FEMALES			
CM		INCHES	
37.75	MEAN VALUE	14.86	
.06	SE(MEAN)	.02	
2.76	STD DEVIATION	1.09	
.04	SE(STD DEV)	.02	
30.30	MINIMUM	11.93	
49.20	MAXIMUM	19.37	
SYMMETRY---VETA I = .36			
KURTOSIS---VETA II = 3.40			
COEF. OF VARIATION = 7.3%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
39.18	MEAN VALUE	15.43	
.06	SE(MEAN)	.03	
2.71	STD DEVIATION	1.07	
.05	SE(STD DEV)	.02	
30.10	MINIMUM	11.85	
49.00	MAXIMUM	19.29	
SYMMETRY---VETA I = .11			
KURTOSIS---VETA II = 3.04			
COEF. OF VARIATION = 6.9%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
				29.75 -	30.25	1	.06	1	.06		
6	.27	6	.27	30.25 -	30.75	0	.00	1	.06		
8	.36	14	.63	30.75 -	31.25	2	.11	3	.17		
5	.23	19	.86	31.25 -	31.75	1	.06	4	.23		
11	.50	30	1.36	31.75 -	32.25	3	.17	7	.39		
25	1.13	55	2.49	32.25 -	32.75	5	.28	12	.68		
27	1.22	82	3.71	32.75 -	33.25	9	.51	21	1.18		
54	2.45	136	6.16	33.25 -	33.75	13	.73	34	1.92		
83	3.76	219	9.92	33.75 -	34.25	22	1.24	56	3.16		
78	3.53	297	13.45	34.25 -	34.75	31	1.75	87	4.90		
95	4.30	392	17.75	34.75 -	35.25	36	2.03	123	6.93		
131	5.93	523	23.69	35.25 -	35.75	53	2.99	176	9.92		
129	5.84	652	29.53	35.75 -	36.25	75	4.23	251	14.15		
157	7.11	809	36.64	36.25 -	36.75	73	4.11	324	18.26		
178	8.06	987	44.70	36.75 -	37.25	102	5.75	426	24.01		
162	7.34	1149	52.04	37.25 -	37.75	112	6.31	538	30.33		
157	7.11	1306	59.15	37.75 -	38.25	113	6.37	651	36.70		
144	6.52	1450	65.67	38.25 -	38.75	127	7.16	778	43.86		
146	6.61	1596	72.28	38.75 -	39.25	127	7.16	905	51.01		
126	5.71	1722	77.99	39.25 -	39.75	143	8.06	1048	59.08		
119	5.39	1841	83.38	39.75 -	40.25	125	7.05	1173	66.12		
85	3.85	1926	87.23	40.25 -	40.75	111	6.26	1284	72.38		
41	1.86	1967	89.09	40.75 -	41.25	88	4.96	1372	77.34		
61	2.76	2028	91.85	41.25 -	41.75	97	5.47	1469	82.81		
47	2.13	2075	93.98	41.75 -	42.25	80	4.51	1549	87.32		
39	1.77	2114	95.74	42.25 -	42.75	55	3.10	1604	90.42		
25	1.13	2139	96.88	42.75 -	43.25	47	2.65	1651	93.07		
17	.77	2156	97.64	43.25 -	43.75	39	2.20	1690	95.26		
18	.82	2174	98.46	43.75 -	44.25	29	1.63	1719	96.90		
5	.23	2179	98.69	44.25 -	44.75	17	.96	1736	97.86		
8	.36	2187	99.05	44.75 -	45.25	8	.45	1744	98.31		
6	.27	2193	99.32	45.25 -	45.75	13	.73	1757	99.04		
4	.18	2197	99.50	45.75 -	46.25	6	.34	1763	99.38		
4	.18	2201	99.68	46.25 -	46.75	1	.06	1764	99.44		
2	.09	2203	99.77	46.75 -	47.25	5	.28	1769	99.72		
2	.09	2205	99.86	47.25 -	47.75	3	.17	1772	99.89		
1	.05	2206	99.91	47.75 -	48.25	1	.06	1773	99.94		
0	.00	2206	99.91	48.25 -	48.75	0	.00	1773	99.94		
2	.09	2208	100.00	48.75 -	49.25	1	.06	1774	100.00		

## (77) MENTON-SELLION LENGTH

The distance between the menton landmark at the bottom of the chin and the sellion landmark at the deepest point of the nasal root depression is measured with a sliding caliper. The teeth are lightly occluded.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
10.06	3.96	1ST	10.77	4.24	
10.18	4.01	2ND	10.93	4.30	
10.27	4.04	3RD	11.03	4.34	
10.39	4.09	5TH	11.16	4.39	
10.59	4.17	10TH	11.37	4.48	
10.73	4.22	15TH	11.52	4.54	
10.84	4.27	20TH	11.64	4.58	
10.93	4.30	25TH	11.74	4.62	
11.02	4.34	30TH	11.83	4.66	
11.10	4.37	35TH	11.92	4.69	
11.18	4.40	40TH	12.01	4.73	
11.25	4.43	45TH	12.09	4.76	
11.33	4.46	50TH	12.17	4.79	
11.40	4.49	55TH	12.25	4.82	
11.48	4.52	60TH	12.34	4.86	
11.56	4.55	65TH	12.43	4.89	
11.64	4.58	70TH	12.52	4.93	
11.73	4.62	75TH	12.62	4.97	
11.84	4.66	80TH	12.74	5.01	
11.96	4.71	85TH	12.87	5.07	
12.12	4.77	90TH	13.04	5.13	
12.36	4.87	95TH	13.29	5.23	
12.53	4.93	97TH	13.45	5.30	
12.65	4.98	98TH	13.57	5.34	
12.86	5.06	99TH	13.74	5.41	

# MENTON-SELLION LENGTH

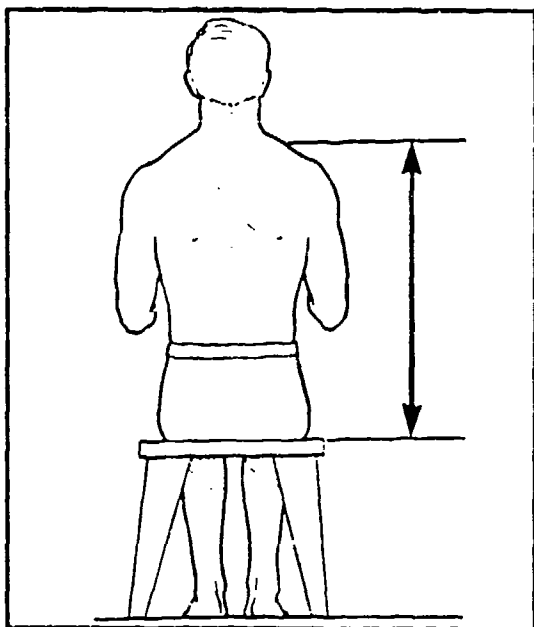
FEMALES			
CM		INCHES	
11.35	MEAN VALUE	4.47	
.00	SE(MEAN)	.00	
.60	STD DEVIATION	.23	
.00	SE(STD DEV)	.00	
9.50	MINIMUM	3.74	
13.40	MAXIMUM	5.28	
SYMMETRY---VETA I = .19			
KURTOSIS---VETA II = 2.98			
COEF. OF VARIATION = 5.3%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
12.19	MEAN VALUE	4.80	
.02	SE(MEAN)	.00	
.65	STD DEVIATION	.26	
.00	SE(STD DEV)	.00	
10.10	MINIMUM	3.98	
14.80	MAXIMUM	5.83	
SYMMETRY---VETA I = .18			
KURTOSIS---VETA II = 3.02			
COEF. OF VARIATION = 5.3%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
2	.09	2	.09	9.45 -	9.55						
0	.00	2	.09	9.55 -	9.65						
2	.09	4	.18	9.65 -	9.75						
2	.09	6	.27	9.75 -	9.85						
7	.32	13	.59	9.85 -	9.95						
8	.36	21	.95	9.95 -	10.05						
15	.68	36	1.63	10.05 -	10.15	1	.06	1	.06		
22	1.00	58	2.63	10.15 -	10.25	0	.00	1	.06		
40	1.81	98	4.44	10.25 -	10.35	1	.06	2	.11		
43	1.95	141	6.39	10.35 -	10.45	1	.06	3	.17		
57	2.58	198	8.97	10.45 -	10.55	3	.17	6	.34		
63	2.85	261	11.82	10.55 -	10.65	4	.23	10	.56		
79	3.58	340	15.40	10.65 -	10.75	6	.34	16	.90		
93	4.21	433	19.61	10.75 -	10.85	9	.51	25	1.41		
117	5.30	550	24.91	10.85 -	10.95	14	.79	39	2.20		
152	6.88	702	31.79	10.95 -	11.05	19	1.07	58	3.27		
155	7.02	857	38.81	11.05 -	11.15	23	1.30	81	4.57		
145	6.57	1002	45.38	11.15 -	11.25	30	1.69	111	6.26		
157	7.11	1159	52.49	11.25 -	11.35	57	2.93	163	9.19		
132	5.98	1291	58.47	11.35 -	11.45	59	3.33	222	12.51		
145	6.57	1436	65.04	11.45 -	11.55	64	3.61	286	16.12		
122	5.53	1558	70.56	11.55 -	11.65	81	4.57	367	20.69		
110	4.98	1668	75.54	11.65 -	11.75	98	5.52	465	26.21		
106	4.80	1774	80.34	11.75 -	11.85	93	5.24	558	31.45		
77	3.49	1851	83.83	11.85 -	11.95	85	4.79	643	36.25		
82	3.71	1933	87.55	11.95 -	12.05	105	5.92	748	42.16		
65	2.94	1998	90.49	12.05 -	12.15	106	5.98	854	48.14		
55	2.49	2053	92.98	12.15 -	12.25	133	7.50	987	55.64		
47	2.13	2100	95.11	12.25 -	12.35	97	5.47	1084	61.10		
26	1.18	2126	96.29	12.35 -	12.45	101	5.69	1185	66.80		
24	1.09	2150	97.37	12.45 -	12.55	75	4.23	1260	71.03		
16	.72	2166	98.10	12.55 -	12.65	82	4.62	1342	75.65		
9	.41	2175	98.51	12.65 -	12.75	82	4.62	1424	80.27		
8	.36	2183	98.87	12.75 -	12.85	72	4.06	1496	84.33		
11	.50	2194	99.37	12.85 -	12.95	51	2.87	1547	87.20		
8	.36	2202	99.73	12.95 -	13.05	61	3.44	1608	90.64		
4	.18	2206	99.91	13.05 -	13.15	36	2.03	1644	92.67		
1	.05	2207	99.95	13.15 -	13.25	31	1.75	1675	94.42		
0	.00	2207	99.95	13.25 -	13.35	32	1.80	1707	96.22		
1	.05	2208	100.00	13.35 -	13.45	17	.96	1724	97.18		
				13.45 -	13.55	9	.51	1733	97.69		
				13.55 -	13.65	15	.85	1748	98.53		
				13.65 -	13.75	9	.51	1757	99.04		
				13.75 -	13.85	3	.17	1760	99.21		
				13.85 -	13.95	5	.28	1765	99.49		
				13.95 -	14.05	2	.11	1767	99.61		
				14.05 -	14.15	3	.17	1770	99.77		
				14.15 -	14.25	2	.11	1772	99.89		
				14.25 -	14.35	0	.00	1772	99.89		
				14.35 -	14.45	0	.00	1772	99.89		
				14.45 -	14.55	1	.06	1773	99.94		
				14.55 -	14.65	0	.00	1773	99.94		
				14.65 -	14.75	0	.00	1773	99.94		
				14.75 -	14.85	1	.06	1774	100.00		

## (78) MIDSHOULDER HEIGHT, SITTING

The vertical distance between a sitting surface and the midshoulder landmark at the top of the right shoulder is measured with an anthropometer. The subject sits erect looking straight ahead. The shoulders and upper arms are relaxed and the forearms and hands are extended forward horizontally with the palms facing each other. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
52.31	20.60	1ST	56.28	22.16
52.94	20.84	2ND	57.12	22.49
53.35	21.00	3RD	57.64	22.69
53.92	21.23	5TH	58.12	22.97
54.84	21.59	10TH	59.39	23.38
55.48	21.84	15TH	60.01	23.66
56.00	22.05	20TH	60.65	23.88
56.46	22.23	25TH	61.12	24.06
56.88	22.39	30TH	61.55	24.23
57.26	22.54	35TH	61.95	24.39
57.64	22.69	40TH	62.32	24.54
58.00	22.83	45TH	62.68	24.68
58.36	22.98	50TH	63.04	24.82
58.72	23.12	55TH	63.40	24.96
59.09	23.26	60TH	63.77	25.10
59.47	23.41	65TH	64.14	25.25
59.87	23.57	70TH	64.54	25.41
60.31	23.74	75TH	64.97	25.58
60.80	23.94	80TH	65.44	25.76
61.35	24.15	85TH	65.99	25.98
62.05	24.43	90TH	66.67	26.25
63.05	24.82	95TH	67.66	26.64
63.66	25.06	97TH	68.27	26.88
64.10	25.24	98TH	68.71	27.05
64.74	25.49	99TH	69.36	27.31

# MIDSHOULDER HEIGHT, SITTING

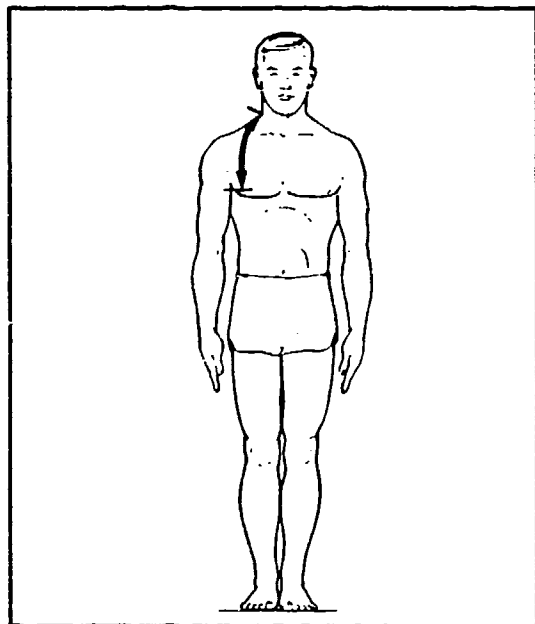
FEMALES		
CM		INCHES
58.40	MEAN VALUE	22.99
.06	SE(MEAN)	.02
2.77	STD DEVIATION	1.09
.04	SE(STD DEV)	.02
48.80	MINIMUM	19.21
69.40	MAXIMUM	27.32
SYMMETRY---VETA I = .08		
KURTOSIS---VETA II = 2.85		
COEF. OF VARIATION = 4.7%		
NUMBER OF SUBJECTS = 2208		

MALES		
CM		INCHES
63.03	MEAN VALUE	24.81
.07	SE(MEAN)	.03
2.82	STD DEVIATION	1.11
.05	SE(STD DEV)	.02
53.80	MINIMUM	21.18
73.00	MAXIMUM	28.74
SYMMETRY---VETA I = -.06		
KURTOSIS---VETA II = 2.93		
COEF. OF VARIATION = 4.5%		
NUMBER OF SUBJECTS = 1774		

FREQUENCY TABLE									
FEMALES					MALES				
F	FPct	CumF	CumFPct	CENTIMETERS	F	FPct	CumF	CumFPct	
1	.05	1	.05	48.75 - 49.25					
0	.00	1	.05	49.25 - 49.75					
0	.00	1	.05	49.75 - 50.25					
0	.00	1	.05	50.25 - 50.75					
7	.32	8	.36	50.75 - 51.25					
6	.27	14	.63	51.25 - 51.75					
3	.14	17	.77	51.75 - 52.25					
20	.91	37	1.68	52.25 - 52.75					
26	1.18	63	2.85	52.75 - 53.25					
34	1.54	97	4.39	53.25 - 53.75					
51	2.31	148	6.70	53.75 - 54.25					
57	2.58	205	9.28	54.25 - 54.75	1	.06	1	.06	
78	3.53	283	12.82	54.75 - 55.25	1	.06	2	.11	
86	3.89	369	16.71	55.25 - 55.75	4	.23	6	.34	
110	4.98	479	21.69	55.75 - 56.25	4	.23	10	.56	
130	5.89	609	27.58	56.25 - 56.75	6	.34	16	.90	
170	7.70	779	35.28	56.75 - 57.25	12	.68	28	1.58	
156	7.07	935	42.35	57.25 - 57.75	12	.68	40	2.25	
152	6.88	1087	49.23	57.75 - 58.25	16	.90	56	3.16	
143	6.48	1230	55.71	58.25 - 58.75	27	1.52	82	4.68	
139	6.30	1369	62.00	58.75 - 59.25	38	2.14	121	6.82	
144	6.52	1513	68.52	59.25 - 59.75	47	2.65	168	9.47	
120	5.43	1633	73.96	59.75 - 60.25	49	2.76	217	12.23	
122	5.53	1755	79.48	60.25 - 60.75	65	3.66	282	15.90	
101	4.57	1856	84.06	60.75 - 61.25	92	5.19	374	21.08	
94	4.26	1950	88.32	61.25 - 61.75	94	5.30	468	26.38	
67	3.03	2017	91.35	61.75 - 62.25	95	5.36	563	31.74	
62	2.81	2079	94.16	62.25 - 62.75	128	7.22	691	38.95	
37	1.68	2116	95.83	62.75 - 63.25	120	6.76	811	45.72	
29	1.31	2145	97.15	63.25 - 63.75	126	7.10	937	52.82	
23	1.04	2168	98.19	63.75 - 64.25	124	6.99	1061	59.81	
20	.91	2188	99.09	64.25 - 64.75	121	6.82	1182	66.63	
7	.32	2195	99.41	64.75 - 65.25	114	6.43	1296	73.06	
4	.18	2199	99.59	65.25 - 65.75	92	5.19	1388	78.24	
4	.18	2203	99.77	65.75 - 66.25	92	5.19	1480	83.43	
4	.18	2207	99.95	66.25 - 66.75	69	3.89	1549	87.32	
0	.00	2207	99.95	66.75 - 67.25	57	3.21	1606	90.53	
0	.00	2207	99.95	67.25 - 67.75	45	2.54	1651	93.07	
0	.00	2207	99.95	67.75 - 68.25	39	2.20	1690	95.26	
0	.00	2207	99.95	68.25 - 68.75	25	1.41	1715	96.67	
0	.00	2207	99.95	68.75 - 69.25	26	1.47	1741	98.14	
1	.05	2208	100.00	69.25 - 69.75	14	.79	1755	98.93	
				69.75 - 70.25	10	.56	1765	99.49	
				70.25 - 70.75	4	.23	1769	99.72	
				70.75 - 71.25	2	.11	1771	99.83	
				71.25 - 71.75	0	.00	1771	99.83	
				71.75 - 72.25	1	.06	1772	99.89	
				72.25 - 72.75	1	.06	1773	99.94	
				72.75 - 73.25	0	.00	1773	99.94	
					1	.06	1774	100.00	

## (79) NECK-BUSTPOINT/THELION LENGTH

The distance between the trapezius landmark at the right side of the neck and the right bustpoint landmark on women or the right ripple (thelion) on men is measured with a tape. The subject stands erect looking straight ahead. The shoulders and upper extremities are relaxed. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
22.02	8.67	1ST	23.27	9.16	
22.55	8.88	2ND	23.73	9.34	
22.88	9.01	3RD	24.02	9.46	
23.34	9.19	5TH	24.40	9.61	
24.04	9.47	10TH	25.00	9.84	
24.53	9.66	15TH	25.40	10.00	
24.91	9.81	20TH	25.72	10.12	
25.25	9.94	25TH	25.99	10.23	
25.56	10.06	30TH	26.24	10.33	
25.85	10.18	35TH	26.48	10.42	
26.13	10.29	40TH	26.70	10.51	
26.40	10.39	45TH	26.92	10.60	
26.67	10.50	50TH	27.14	10.68	
26.95	10.61	55TH	27.36	10.77	
27.23	10.72	60TH	27.59	10.86	
27.53	10.84	65TH	27.83	10.96	
27.85	10.96	70TH	28.09	11.06	
28.20	11.10	75TH	28.37	11.17	
28.60	11.26	80TH	28.70	11.30	
29.08	11.45	85TH	29.08	11.45	
29.70	11.69	90TH	29.59	11.65	
30.65	12.07	95TH	30.38	11.96	
31.30	12.32	97TH	30.92	12.17	
31.78	12.51	98TH	31.33	12.34	
32.57	12.82	99TH	32.00	12.60	

# NECK-BUSTPOINT/THELION LENGTH

FEMALES			
<u>CM</u>		<u>INCHES</u>	
26.80	MEAN VALUE	10.55	
.05	SE (MEAN)	.02	
2.23	STD DEVIATION	.88	
.03	SE (STD DEV)	.00	
20.20	MINIMUM	7.95	
35.40	MAXIMUM	13.94	
SYMMETRY---VETA I = .31			
KURTOSIS---VETA II = 3.21			
COEF. OF VARIATION = 8.3%			
NUMBER OF SUBJECTS = 2208			

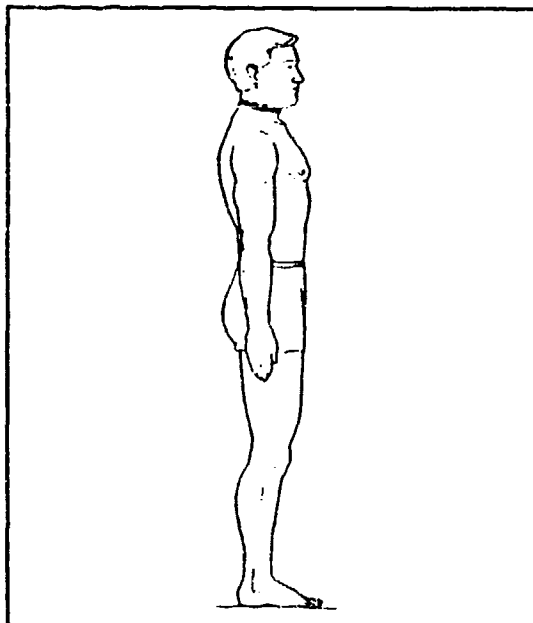
MALES			
<u>CM</u>		<u>INCHES</u>	
27.24	MEAN VALUE	10.73	
.04	SE (MEAN)	.02	
1.81	STD DEVIATION	.71	
.03	SE (STD DEV)	.00	
22.20	MINIMUM	8.74	
34.20	MAXIMUM	13.46	
SYMMETRY---VETA I = .33			
KURTOSIS---VETA II = 3.25			
COEF. OF VARIATION = 6.7%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct	CumF	CumFPct		
1	.05	1	.05	19.75 -	20.25	1	.06	1	.06		
1	.05	2	.09	20.25 -	20.75	3	.17	4	.23		
9	.41	11	.50	20.75 -	21.25	13	.73	17	.96		
6	.27	17	.77	21.25 -	21.75	20	1.13	37	2.09		
11	.50	28	1.27	21.75 -	22.25	32	1.80	69	3.89		
25	1.13	53	2.40	22.25 -	22.75	57	3.21	126	7.10		
39	1.77	92	4.17	22.75 -	23.25	109	6.14	235	13.25		
77	3.49	169	7.65	23.25 -	23.75	125	7.05	360	20.29		
95	4.30	264	11.96	23.75 -	24.25	167	9.41	527	29.71		
115	5.21	379	17.16	24.25 -	24.75	214	12.06	741	41.77		
182	8.24	561	25.41	24.75 -	25.25	212	11.95	953	53.72		
187	8.47	748	33.88	25.25 -	25.75	173	9.75	1126	63.47		
187	8.47	935	42.35	25.75 -	26.25	148	8.34	1274	71.82		
197	8.92	1132	51.27	26.25 -	26.75	157	8.85	1431	80.67		
209	9.47	1341	60.73	26.75 -	27.25	100	5.64	1531	86.30		
161	7.29	1502	68.03	27.25 -	27.75	85	4.79	1616	91.09		
159	7.20	1661	75.23	27.75 -	28.25	61	3.44	1677	94.53		
142	6.43	1803	81.66	28.25 -	28.75	40	2.25	1717	96.79		
108	4.89	1911	86.55	28.75 -	29.25	18	1.01	1735	97.80		
74	3.35	1985	89.90	29.25 -	29.75	15	.85	1750	98.65		
72	3.26	2057	93.16	29.75 -	30.25	12	.68	1762	99.32		
58	2.63	2115	95.79	30.25 -	30.75	4	.23	1766	99.55		
31	1.40	2146	97.19	30.75 -	31.25	2	.11	1768	99.66		
16	.72	2162	97.92	31.25 -	31.75	4	.23	1772	99.89		
18	.82	2180	98.73	31.75 -	32.25	2	.11	1774	100.00		
8	.36	2188	99.09	32.25 -	32.75						
5	.23	2193	99.32	32.75 -	33.25						
6	.27	2199	99.59	33.25 -	33.75						
6	.27	2205	99.86	33.75 -	34.25						
2	.09	2207	99.95	34.25 -	34.75						
0	.00	2207	99.95	34.75 -	35.25						
1	.05	2208	100.00	35.25 -	35.75						



## (80) NECK CIRCUMFERENCE

The circumference of the neck at the level of the infrathyroid landmark (Adam's apple) is measured with a tape. The plane of the measurement is perpendicular to the long axis of the neck. The subject stands erect with the head in the Frankfort plane. The shoulders and upper extremities are relaxed.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
28.43	11.19	1ST	33.66	13.25	
28.73	11.31	2ND	34.17	13.45	
28.93	11.39	3RD	34.48	13.57	
29.22	11.50	5TH	34.90	13.74	
29.68	11.68	10TH	35.53	13.99	
30.00	11.81	15TH	35.96	14.16	
30.27	11.92	20TH	36.31	14.29	
30.50	12.01	25TH	36.61	14.41	
30.71	12.09	30TH	36.88	14.52	
30.91	12.17	35TH	37.14	14.62	
31.10	12.24	40TH	37.38	14.72	
31.29	12.32	45TH	37.63	14.81	
31.48	12.39	50TH	37.87	14.91	
31.67	12.47	55TH	38.12	15.01	
31.87	12.55	60TH	38.37	15.11	
32.07	12.63	65TH	38.63	15.21	
32.30	12.71	70TH	38.92	15.32	
32.54	12.81	75TH	39.23	15.44	
32.82	12.92	80TH	39.58	15.58	
33.15	13.05	85TH	40.00	15.75	
33.58	13.22	90TH	40.53	15.96	
34.25	13.48	95TH	41.34	16.28	
34.70	13.66	97TH	41.87	16.48	
35.04	13.80	98TH	42.25	16.64	
35.60	14.02	99TH	42.86	16.87	

# NECK CIRCUMFERENCE

## FEMALES

<u>CM</u>		<u>INCHES</u>
31.57	MEAN VALUE	12.43
.03	SE (MEAN)	.00
1.53	STD DEVIATION	.60
.02	SE (STD DEV)	.00
27.20	MINIMUM	10.71
37.20	MAXIMUM	14.65

SYMMETRY---VETA I = .36  
 KURTOSIS---VETA II = 3.19  
 COEF. OF VARIATION = 4.8%  
 NUMBER OF SUBJECTS = 2208

## MALES

<u>CM</u>		<u>INCHES</u>
37.96	MEAN VALUE	14.94
.05	SE (MEAN)	.02
1.97	STD DEVIATION	.77
.03	SE (STD DEV)	.00
31.60	MINIMUM	12.44
47.00	MAXIMUM	18.50

SYMMETRY---VETA I = .32  
 KURTOSIS---VETA II = 3.50  
 COEF. OF VARIATION = 5.2%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
1	.05	1	.05
5	.23	6	.27
6	.27	12	.54
31	1.40	43	1.95
72	3.26	115	5.21
121	5.48	236	10.69
206	9.33	442	20.02
237	10.73	679	30.75
285	12.91	964	43.66
301	13.63	1265	57.29
264	11.96	1529	69.25
214	9.69	1743	78.94
165	7.47	1908	86.41
114	5.16	2022	91.58
73	3.31	2095	94.88
52	2.36	2147	97.24
28	1.27	2175	98.51
14	.63	2189	99.14
8	.36	2197	99.50
7	.32	2204	99.82
4	.18	2208	100.00

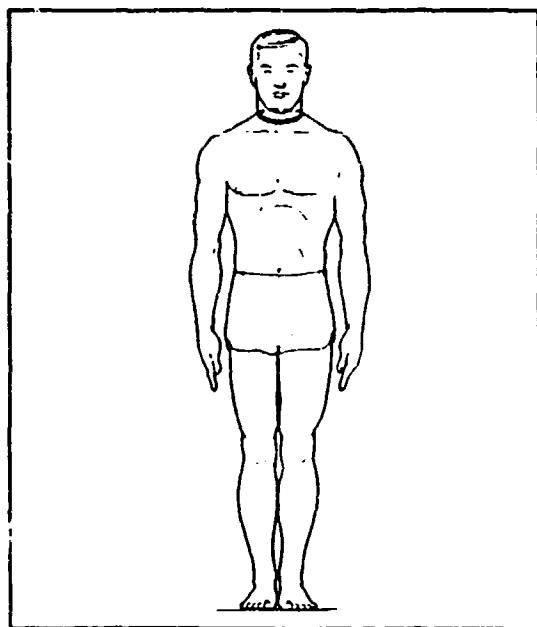
<u>CENTIMETERS</u>
26.75 - 27.25
27.25 - 27.75
27.75 - 28.25
28.25 - 28.75
28.75 - 29.25
29.25 - 29.75
29.75 - 30.25
30.25 - 30.75
30.75 - 31.25
31.25 - 31.75
31.75 - 32.25
32.25 - 32.75
32.75 - 33.25
33.25 - 33.75
33.75 - 34.25
34.25 - 34.75
34.75 - 35.25
35.25 - 35.75
35.75 - 36.25
36.25 - 36.75
36.75 - 37.25
37.25 - 37.75
37.75 - 38.25
38.25 - 38.75
38.75 - 39.25
39.25 - 39.75
39.75 - 40.25
40.25 - 40.75
40.75 - 41.25
41.25 - 41.75
41.75 - 42.25
42.25 - 42.75
42.75 - 43.25
43.25 - 43.75
43.75 - 44.25
44.25 - 44.75
44.75 - 45.25
45.25 - 45.75
45.75 - 46.25
46.25 - 46.75
46.75 - 47.25

### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
0	.00	1	.06
2	.11	3	.17
5	.28	8	.45
11	.62	19	1.07
20	1.13	39	2.20
36	2.03	75	4.23
50	2.82	125	7.05
98	5.52	223	12.57
111	6.26	334	18.83
143	8.06	477	26.89
174	9.81	651	36.70
199	11.22	850	47.91
171	9.64	1021	57.55
167	9.41	1188	66.97
164	9.24	1352	76.21
116	6.54	1468	82.75
93	5.24	1561	87.99
64	3.61	1625	91.60
53	2.99	1678	94.59
30	1.69	1708	96.28
31	1.75	1739	98.03
16	.90	1755	98.93
10	.56	1765	99.49
3	.17	1768	99.66
2	.11	1770	99.77
0	.00	1770	99.77
0	.00	1770	99.77
2	.11	1772	99.89
0	.00	1772	99.89
2	.11	1774	100.00

## (81) NECK CIRCUMFERENCE, BASE

The circumference of the base of the neck is measured by a tape passing over the drawn lateral and anterior neck landmarks. The subject stands erect with the head in the Frankfort plane. The shoulders and upper extremities are relaxed.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
31.18	12.28	1ST	36.32	14.30	
31.50	12.40	2ND	36.83	14.50	
31.72	12.49	3RD	37.15	14.63	
32.03	12.61	5TH	37.59	14.80	
32.55	12.81	10TH	38.28	15.07	
32.91	12.96	15TH	38.75	15.26	
33.21	13.07	20TH	39.12	15.40	
33.47	13.18	25TH	39.45	15.53	
33.71	13.27	30TH	39.74	15.64	
33.93	13.36	35TH	40.01	15.75	
34.15	13.44	40TH	40.27	15.85	
34.35	13.53	45TH	40.52	15.95	
34.56	13.61	50TH	40.77	16.05	
34.77	13.69	55TH	41.02	16.15	
34.98	13.77	60TH	41.28	16.25	
35.21	13.86	65TH	41.55	16.36	
35.44	13.95	70TH	41.84	16.47	
35.70	14.05	75TH	42.16	16.60	
35.99	14.17	80TH	42.52	16.74	
36.33	14.30	85TH	42.94	16.90	
36.76	14.47	90TH	43.49	17.12	
37.42	14.73	95TH	44.33	17.45	
37.85	14.90	97TH	44.91	17.68	
38.18	15.03	98TH	45.34	17.85	
38.71	15.24	99TH	46.05	18.13	

# NECK CIRCUMFERENCE, BASE

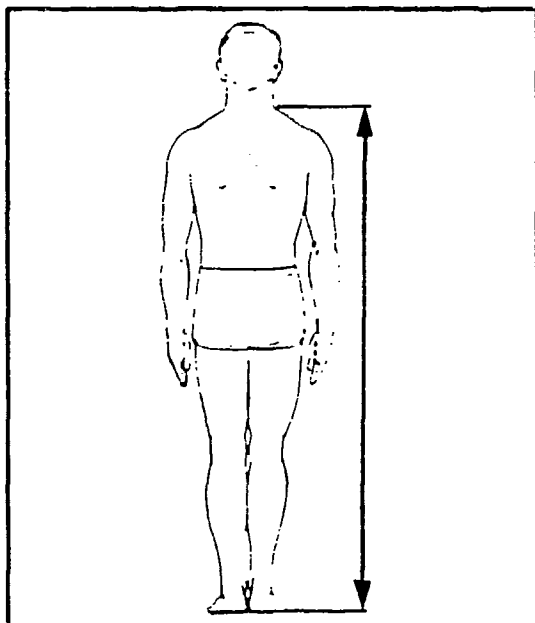
FEMALES			
CM		INCHES	
34.62	MEAN VALUE	13.63	
.03	SE (MEAN)	.00	
1.63	STD DEVIATION	.64	
.02	SE (STD DEV)	.00	
29.80	MINIMUM	11.73	
40.90	MAXIMUM	16.10	
SYMMETRY---VETA I = .21			
KURTOSIS---VETA II = 3.00			
COEF. OF VARIATION = 4.7%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
40.84	MEAN VALUE	16.08	
.05	SE (MEAN)	.02	
2.05	STD DEVIATION	.81	
.03	SE (STD DEV)	.00	
34.90	MINIMUM	13.74	
50.50	MAXIMUM	19.88	
SYMMETRY---VETA I = .29			
KURTOSIS---VETA II = 3.48			
COEF. OF VARIATION = 5.0%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
6	.27	6	.27	29.75	- 30.25	5	.28	5	.28		
2	.09	8	.36	30.25	- 30.75	1	.06	6	.34		
17	.77	25	1.13	30.75	- 31.25	7	.39	13	.73		
44	1.99	69	3.13	31.25	- 31.75	20	1.13	33	1.86		
81	3.67	150	6.79	31.75	- 32.25	28	1.58	61	3.44		
120	5.43	270	12.23	32.25	- 32.75	44	2.48	105	5.92		
182	8.24	452	20.47	32.75	- 33.25	69	3.89	174	9.81		
222	10.05	674	30.53	33.25	- 33.75	86	4.85	260	14.66		
265	12.00	939	42.53	33.75	- 34.25	112	6.31	372	20.97		
262	11.87	1201	54.39	34.25	- 34.75	166	9.36	538	30.33		
258	11.68	1459	66.08	34.75	- 35.25	156	8.79	694	39.12		
217	9.83	1676	75.91	35.25	- 35.75	176	9.92	870	49.04		
174	7.88	1850	83.79	35.75	- 36.25	201	11.33	1071	60.37		
145	6.57	1995	90.35	36.25	- 36.75	157	8.85	1228	69.22		
84	3.80	2079	94.16	36.75	- 37.25	133	7.50	1361	76.72		
49	2.22	2128	96.38	37.25	- 37.75	111	6.26	1472	82.98		
37	1.68	2165	98.05	37.75	- 38.25	85	4.79	1557	87.77		
22	1.00	2187	99.05	38.25	- 38.75	72	4.06	1629	91.83		
12	.54	2199	99.59	38.75	- 39.25	54	3.04	1683	94.87		
5	.23	2204	99.82	39.25	- 39.75	27	1.52	1710	96.39		
3	.14	2207	99.95	39.75	- 40.25	25	1.41	1735	97.80		
0	.00	2207	99.95	40.25	- 40.75	15	.85	1750	98.65		
1	.05	2208	100.00	40.75	- 41.25	12	.68	1762	99.32		
				41.25	- 41.75	4	.23	1766	99.55		
				41.75	- 42.25	4	.23	1770	99.77		
				42.25	- 42.75	0	.00	1770	99.77		
				42.75	- 43.25	0	.00	1770	99.77		
				43.25	- 43.75	1	.06	1771	99.83		
				43.75	- 44.25	1	.06	1772	99.89		
				44.25	- 44.75	1	.06	1773	99.94		
				44.75	- 45.25	0	.00	1773	99.94		
				45.25	- 45.75	1	.06	1774	100.00		
				45.75	- 46.25						
				46.25	- 46.75						
				46.75	- 47.25						
				47.25	- 47.75						
				47.75	- 48.25						
				48.25	- 48.75						
				48.75	- 49.25						
				49.25	- 49.75						
				49.75	- 50.25						
				50.25	- 50.75						

## (82) NECK HEIGHT, LATERAL

The vertical distance between a standing surface and the trapezius landmark on the right side of the neck is measured with an anthropometer. The subject stands erect with the head in the Frankfort plane. The heels are together with the weight distributed equally on both feet. The shoulders and upper extremities are relaxed. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
126.30	49.72	1ST	136.42	53.71
127.97	50.38	2ND	138.30	54.45
128.98	50.78	3RD	139.44	54.90
130.32	51.31	5TH	140.93	55.48
132.32	52.10	10TH	143.15	56.36
133.66	52.62	15TH	144.62	56.94
134.73	53.04	20TH	145.77	57.39
135.65	53.41	25TH	146.78	57.79
136.49	53.73	30TH	147.68	58.14
137.27	54.04	35TH	148.51	58.47
138.01	54.34	40TH	149.31	58.78
138.74	54.62	45TH	150.09	59.09
139.48	54.91	50TH	150.86	59.39
140.22	55.20	55TH	151.64	59.70
140.97	55.50	60TH	152.43	60.01
141.76	55.81	65TH	153.26	60.34
142.60	56.14	70TH	154.13	60.68
143.52	56.50	75TH	155.08	61.06
144.56	56.91	80TH	156.15	61.48
145.76	57.39	85TH	157.38	61.96
147.29	57.99	90TH	158.93	62.57
149.54	58.87	95TH	161.16	63.45
150.96	59.43	97TH	162.55	63.99
151.97	59.83	98TH	163.52	64.38
153.49	60.43	99TH	164.94	64.94

# NECK HEIGHT, LATERAL

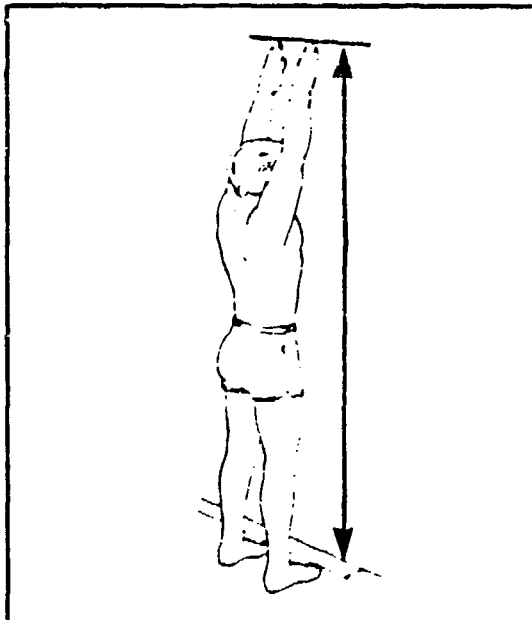
FEMALES			
CM		INCHES	
139.65	MEAN VALUE	54.98	
.12	SE (MEAN)	.05	
5.84	STD DEVIATION	2.30	
.09	SE (STD DEV)	.03	
120.60	MINIMUM	47.48	
161.30	MAXIMUM	63.50	
SYMMETRY---VETA I = .11			
KURTOSIS---VETA II = 3.00			
COEF. OF VARIATION = 4.2%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
150.95	MEAN VALUE	59.43	
.15	SE (MEAN)	.06	
6.16	STD DEVIATION	2.42	
.10	SE (STD DEV)	.04	
125.40	MINIMUM	49.37	
177.10	MAXIMUM	69.72	
SYMMETRY---VETA I = .06			
KURTOSIS---VETA II = 3.20			
COEF. OF VARIATION = 4.1%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	Pct	CumF	CumFPct	CENTIMETERS		F	Pct	CumF	CumFPct		
1	.05	1	.05	120.25 - 121.75		1	.06	1	.06		
3	.14	4	.18	121.75 - 123.25		0	.00	1	.06		
8	.36	12	.54	123.25 - 124.75		0	.00	1	.06		
7	.32	19	.86	124.75 - 126.25		0	.00	1	.06		
23	1.04	42	1.90	126.25 - 127.75		0	.00	1	.06		
30	1.36	72	3.26	127.75 - 129.25		0	.00	1	.06		
45	2.04	117	5.30	129.25 - 130.75		0	.00	1	.06		
90	4.08	207	9.38	130.75 - 132.25		0	.00	1	.06		
124	5.62	331	14.99	132.25 - 133.75		4	.23	5	.28		
180	8.15	511	23.14	133.75 - 135.25		4	.23	9	.51		
208	9.42	719	32.56	135.25 - 136.75		12	.68	21	1.18		
216	9.78	935	42.35	136.75 - 138.25		16	.90	37	2.09		
187	8.47	1122	50.82	138.25 - 139.75		16	.90	53	2.99		
233	10.55	1355	61.37	139.75 - 141.25		37	2.09	90	5.07		
195	8.83	1550	70.20	141.25 - 142.75		64	3.61	154	8.68		
183	8.29	1733	78.49	142.75 - 144.25		85	4.79	239	13.47		
145	6.57	1878	85.05	144.25 - 145.75		117	6.60	356	20.07		
107	4.85	1985	89.90	145.75 - 147.25		144	8.12	500	28.18		
88	3.99	2073	93.89	147.25 - 148.75		160	9.02	660	37.20		
51	2.31	2124	96.20	148.75 - 150.25		155	8.74	815	45.94		
36	1.63	2160	97.83	150.25 - 151.75		173	9.75	988	55.69		
21	.95	2181	98.78	151.75 - 153.25		161	9.08	1149	64.77		
15	.68	2196	99.46	153.25 - 154.75		147	8.23	1296	73.06		
4	.18	2200	99.64	154.75 - 156.25		127	7.16	1423	80.21		
5	.23	2205	99.86	156.25 - 157.75		100	5.64	1523	85.85		
2	.09	2207	99.95	157.75 - 159.25		94	5.30	1617	91.15		
0	.00	2207	99.95	159.25 - 160.75		57	3.21	1674	94.36		
1	.05	2208	100.00	160.75 - 162.25		41	2.31	1715	96.67		
				162.25 - 163.75		32	1.80	1747	98.48		
				163.75 - 165.25		11	.62	1758	99.10		
				165.25 - 166.75		4	.23	1762	99.32		
				166.75 - 168.25		6	.34	1768	99.66		
				168.25 - 169.75		3	.17	1771	99.83		
				169.75 - 171.25		1	.06	1772	99.89		
				171.25 - 172.75		0	.00	1772	99.89		
				172.75 - 174.25		0	.00	1772	99.89		
				174.25 - 175.75		1	.06	1773	99.94		
				175.75 - 177.25		1	.06	1774	100.00		

## (83) OVERHEAD FINGERTIP REACH

The vertical distance between a standing surface and the tip of the right middle finger when the arm is extended overhead is measured on a wall scale. The subject stands facing a wall-mounted scale with both arms extended overhead parallel to each other. The toes are 20 cm from the wall and the feet are about 10 cm apart. The palms of the hands rest on the scale. A block is placed against the tip of the finger to establish the measurement. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
184.98	72.83	1ST	200.56	78.96
187.68	73.89	2ND	203.35	80.06
189.31	74.53	3RD	205.06	80.73
191.45	75.37	5TH	207.33	81.63
194.64	76.63	10TH	210.77	82.98
196.76	77.47	15TH	213.07	83.89
198.44	78.13	20TH	214.90	84.61
199.91	78.70	25TH	216.49	85.23
201.22	79.22	30TH	217.92	85.80
202.45	79.71	35TH	219.26	86.32
203.63	80.17	40TH	220.54	86.83
204.79	80.62	45TH	221.78	87.32
205.94	81.08	50TH	223.02	87.80
207.10	81.54	55TH	224.27	88.30
208.29	82.01	60TH	225.54	88.80
209.54	82.50	65TH	226.87	89.32
210.86	83.02	70TH	228.26	89.87
212.31	83.59	75TH	229.78	90.46
213.94	84.23	80TH	231.47	91.13
215.83	84.97	85TH	233.42	91.90
218.23	85.92	90TH	235.85	92.85
221.73	87.30	95TH	239.32	94.22
223.93	88.16	97TH	241.43	95.05
225.50	88.78	98TH	242.90	95.63
227.82	89.69	99TH	245.00	96.46

# OVERHEAD FINGERTIP REACH

FEMALES			
CM		INCHES	
206.15	MEAN VALUE	81.16	
.20	SE(MEAN)	.08	
9.24	STD DEVIATION	3.64	
.14	SE(STD DEV)	.05	
172.10	MINIMUM	67.76	
239.30	MAXIMUM	94.21	
SYMMETRY---VETA I = .07			
KURTOSIS---VETA II = 3.02			
COEF. OF VARIATION = 4.5%			
NUMBER OF SUBJECTS = 2208			

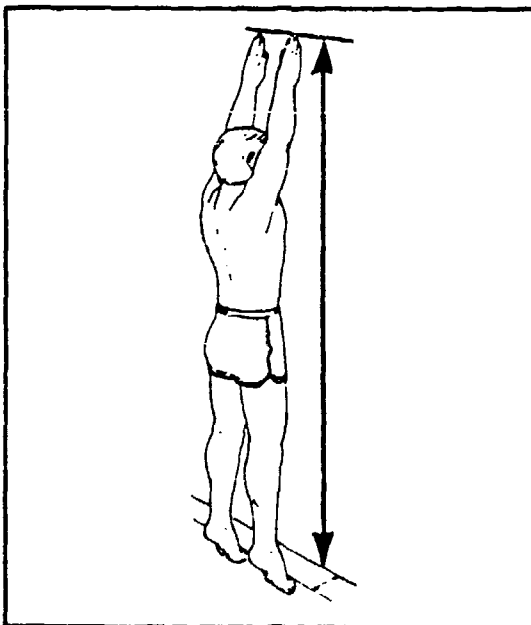
MALES			
CM		INCHES	
223.14	MEAN VALUE	87.85	
.23	SE(MEAN)	.09	
9.75	STD DEVIATION	3.84	
.16	SE(STD DEV)	.06	
179.90	MINIMUM	70.83	
267.60	MAXIMUM	105.35	
SYMMETRY---VETA I = .05			
KURTOSIS---VETA II = 3.30			
COEF. OF VARIATION = 4.4%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
2	.09	2	.09	171.55 - 173.55		1	.06	1	.06		
0	.00	2	.09	173.55 - 175.55		0	.00	1	.06		
1	.05	3	.14	175.55 - 177.55		0	.00	1	.06		
2	.09	5	.23	177.55 - 179.55		0	.00	1	.06		
1	.05	6	.27	179.55 - 181.55		0	.00	1	.06		
8	.36	14	.63	181.55 - 183.55		0	.00	1	.06		
16	.72	30	1.36	183.55 - 185.55		0	.00	1	.06		
15	.68	45	2.04	185.55 - 187.55		0	.00	1	.06		
17	.77	62	2.81	187.55 - 189.55		0	.00	1	.06		
46	2.08	108	4.89	189.55 - 191.55		0	.00	1	.06		
66	2.99	174	7.88	191.55 - 193.55		1	.06	2	.11		
102	4.62	276	12.50	193.55 - 195.55		2	.11	4	.23		
105	4.76	381	17.26	195.55 - 197.55		1	.06	5	.28		
151	6.84	532	24.09	197.55 - 199.55		9	.51	14	.79		
172	7.79	704	31.88	199.55 - 201.55		8	.45	22	1.24		
192	8.70	896	40.58	201.55 - 203.55		15	.85	37	2.09		
188	8.51	1084	49.09	203.55 - 205.55		22	1.24	59	3.33		
164	7.43	1248	56.52	205.55 - 207.55		30	1.69	89	5.02		
170	7.70	1418	64.22	207.55 - 209.55		56	3.16	145	8.17		
164	7.43	1582	71.65	209.55 - 211.55		50	2.82	195	10.99		
144	6.52	1726	78.17	211.55 - 213.55		84	4.74	279	15.73		
133	6.02	1859	84.19	213.55 - 215.55		112	6.31	391	22.04		
119	5.39	1978	89.58	215.55 - 217.55		128	7.22	519	29.26		
54	2.45	2032	92.03	217.55 - 219.55		110	6.20	629	35.46		
72	3.26	2104	95.29	219.55 - 221.55		149	8.40	778	43.86		
38	1.72	2142	97.01	221.55 - 223.55		157	8.85	935	52.71		
22	1.00	2164	98.01	223.55 - 225.55		144	8.12	1079	60.82		
17	.77	2181	98.78	225.55 - 227.55		111	6.26	1190	67.08		
17	.77	2198	99.55	227.55 - 229.55		128	7.22	1318	74.30		
2	.09	2200	99.64	229.55 - 231.55		98	5.52	1416	79.82		
4	.18	2204	99.82	231.55 - 233.55		93	5.24	1509	85.06		
1	.05	2205	99.86	233.55 - 235.55		85	4.79	1594	89.85		
1	.05	2206	99.91	235.55 - 237.55		60	3.38	1654	93.24		
2	.09	2208	100.00	237.55 - 239.55		34	1.92	1688	95.15		
				239.55 - 241.55		31	1.75	1719	96.90		
				241.55 - 243.55		31	1.75	1750	98.65		
				243.55 - 245.55		10	.56	1760	99.21		
				245.55 - 247.55		3	.17	1763	99.38		
				247.55 - 249.55		7	.39	1770	99.77		
				249.55 - 251.55		1	.06	1771	99.83		
				251.55 - 253.55		0	.00	1771	99.83		
				253.55 - 255.55		1	.06	1772	99.89		
				255.55 - 257.55		0	.00	1772	99.89		
				257.55 - 259.55		0	.00	1772	99.89		
				259.55 - 261.55		0	.00	1772	99.89		
				261.55 - 263.55		0	.00	1772	99.89		
				263.55 - 265.55		1	.06	1773	99.94		
				265.55 - 267.55		0	.00	1773	99.94		
				267.55 - 269.55		1	.06	1774	100.00		



## (84) OVERHEAD FINGERTIP REACH, EXTENDED

The vertical distance between a standing surface and the tip of the right middle finger when the arm is extended overhead as high as possible is measured on a wall scale. The subject stands on his/her toes facing a wall-mounted scale with both arms parallel and extended overhead as high as possible. The toes are 20 cm from the wall and the feet are about 10 cm apart. The palms of the hands rest on the scale. A block is placed against the tip of the finger to establish the measurement. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
193.57	76.21	1ST	209.93	82.65
196.30	77.28	2ND	212.68	83.73
197.97	77.94	3RD	214.39	84.40
200.16	78.80	5TH	216.68	85.31
203.45	80.10	10TH	220.16	86.68
205.65	80.96	15TH	222.52	87.60
207.39	81.65	20TH	224.38	88.34
208.90	82.25	25TH	226.01	88.98
210.27	82.78	30TH	227.47	89.56
211.54	83.28	35TH	228.83	90.09
212.76	83.76	40TH	230.14	90.60
213.95	84.23	45TH	231.40	91.10
215.14	84.70	50TH	232.66	91.60
216.34	85.17	55TH	233.93	92.10
217.56	85.65	60TH	235.22	92.61
218.84	86.16	65TH	236.56	93.14
220.20	86.69	70TH	237.98	93.69
221.68	87.28	75TH	239.53	94.30
223.35	87.93	80TH	241.26	94.98
225.28	88.69	85TH	243.26	95.77
227.72	89.66	90TH	245.77	96.76
231.28	91.06	95TH	249.44	98.20
233.52	91.94	97TH	251.74	99.11
235.10	92.56	98TH	253.38	99.75
237.45	93.48	99TH	255.84	100.72

# OVERHEAD FINGERTIP REACH, EXTENDED

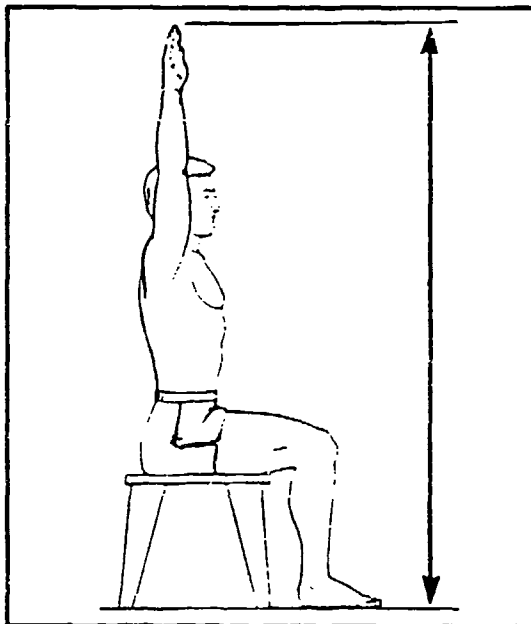
FEMALES			
CM		INCHES	
215.34	MEAN VALUE	84.78	
.20	SE (MEAN)	.08	
9.50	STD DEVIATION	3.74	
.14	SE (STD DEV)	.06	
182.00	MINIMUM	71.65	
248.80	MAXIMUM	97.95	
SYMMETRY---VETA I = .06			
KURTOSIS---VETA II = 3.01			
COEF. OF VARIATION = 4.4%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
232.80	MEAN VALUE	91.65	
.24	SE (MEAN)	.09	
9.99	STD DEVIATION	3.94	
.17	SE (STD DEV)	.07	
191.70	MINIMUM	75.47	
281.10	MAXIMUM	110.67	
SYMMETRY---VETA I = .09			
KURTOSIS---VETA II = 3.25			
COEF. OF VARIATION = 4.3%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
3	.14	3	.14	181.55	- 183.55						
0	.00	3	.14	183.55	- 185.55						
1	.05	4	.18	185.55	- 187.55						
2	.09	6	.27	187.55	- 189.55						
10	.45	16	.72	189.55	- 191.55						
9	.41	25	1.13	191.55	- 193.55	1	.06	1	.06		
11	.50	36	1.63	193.55	- 195.55	0	.00	1	.06		
20	.91	56	2.54	195.55	- 197.55	0	.00	1	.06		
39	1.77	95	4.30	197.55	- 199.55	0	.00	1	.06		
59	2.67	154	6.97	199.55	- 201.55	1	.06	2	.11		
74	3.35	228	10.33	201.55	- 203.55	2	.11	4	.23		
99	4.48	327	14.81	203.55	- 205.55	0	.00	4	.23		
120	5.43	447	20.24	205.55	- 207.55	5	.28	9	.51		
160	7.25	607	27.49	207.55	- 209.55	7	.39	16	.90		
190	8.61	797	36.10	209.55	- 211.55	10	.56	26	1.47		
180	8.15	977	44.25	211.55	- 213.55	21	1.18	47	2.65		
166	7.52	1143	51.77	213.55	- 215.55	20	1.13	67	3.78		
174	7.88	1317	59.65	215.55	- 217.55	47	2.65	114	6.43		
157	7.11	1474	66.76	217.55	- 219.55	37	2.09	151	8.51		
157	7.11	1631	73.87	219.55	- 221.55	61	3.44	212	11.95		
149	6.75	1780	80.62	221.55	- 223.55	100	5.64	312	17.59		
120	5.43	1900	86.05	223.55	- 225.55	116	6.54	428	24.13		
81	3.67	1981	89.72	225.55	- 227.55	125	7.05	553	31.17		
64	2.90	2045	92.62	227.55	- 229.55	113	6.37	666	37.54		
60	2.72	2105	95.34	229.55	- 231.55	152	8.57	818	46.11		
46	2.08	2151	97.42	231.55	- 233.55	139	7.84	957	53.95		
20	.91	2171	98.32	233.55	- 235.55	144	8.12	1101	62.06		
14	.63	2185	98.96	235.55	- 237.55	116	6.54	1217	68.60		
11	.50	2196	99.46	237.55	- 239.55	116	6.54	1333	75.14		
6	.27	2202	99.73	239.55	- 241.55	89	5.02	1422	80.16		
2	.09	2204	99.82	241.55	- 243.55	97	5.47	1519	85.63		
2	.09	2206	99.91	243.55	- 245.55	77	4.34	1596	89.97		
1	.05	2207	99.95	245.55	- 247.55	52	2.93	1648	92.90		
1	.05	2208	100.00	247.55	- 249.55	33	1.86	1681	94.76		
				249.55	- 251.55	40	2.25	1721	97.01		
				251.55	- 253.55	22	1.24	1743	98.25		
				253.55	- 255.55	11	.62	1754	98.87		
				255.55	- 257.55	10	.56	1764	99.44		
				257.55	- 259.55	6	.34	1770	99.77		
				259.55	- 261.55	0	.00	1770	99.77		
				261.55	- 263.55	1	.06	1771	99.83		
				263.55	- 265.55	1	.06	1772	99.89		
				265.55	- 267.55	0	.00	1772	99.89		
				267.55	- 269.55	0	.00	1772	99.89		
				269.55	- 271.55	1	.06	1773	99.94		
				271.55	- 273.55	0	.00	1773	99.94		
				273.55	- 275.55	0	.00	1773	99.94		
				275.55	- 277.55	0	.00	1773	99.94		
				277.55	- 279.55	0	.00	1773	99.94		
				279.55	- 281.55	1	.06	1774	100.00		

## (85) OVERHEAD FINGERTIP REACH, SITTING

The vertical distance between a sitting surface and the tip of the right middle finger of a seated subject whose arm is extended overhead is measured on a wall scale. The subject sits erect on a flat surface 40.8 cm high with the right arm and hand extended vertically overhead as far as possible and the palm of the hand facing forward. Neither the back nor the arm touches a wall. A block placed at the tip of the middle finger spans the distance between the finger and the wall and establishes the measurement on the wall scale. The measurement is made at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
119.72	47.13	1ST	129.31	50.91
121.12	47.69	2ND	131.19	51.65
122.05	48.05	3RD	132.32	52.09
123.33	48.55	5TH	133.78	52.67
125.35	49.35	10TH	135.93	53.52
126.75	49.90	15TH	137.35	54.07
127.85	50.34	20TH	138.46	54.51
128.81	50.71	25TH	139.42	54.89
129.68	51.05	30TH	140.28	55.23
130.47	51.37	35TH	141.07	55.54
131.22	51.66	40TH	141.84	55.84
131.95	51.95	45TH	142.58	56.13
132.67	52.23	50TH	143.32	56.42
133.39	52.51	55TH	144.06	56.72
134.11	52.80	60TH	144.82	57.02
134.85	53.09	65TH	145.61	57.33
135.63	53.40	70TH	146.45	57.66
136.47	53.73	75TH	147.36	58.01
137.40	54.09	80TH	148.38	58.42
138.47	54.52	85TH	149.56	58.88
139.81	55.04	90TH	151.04	59.46
141.77	55.81	95TH	153.17	60.30
143.03	56.31	97TH	154.48	60.82
143.94	56.67	98TH	155.39	61.18
145.30	57.24	99TH	156.72	61.70

# OVERHEAD FINGERTIP REACH, SITTING

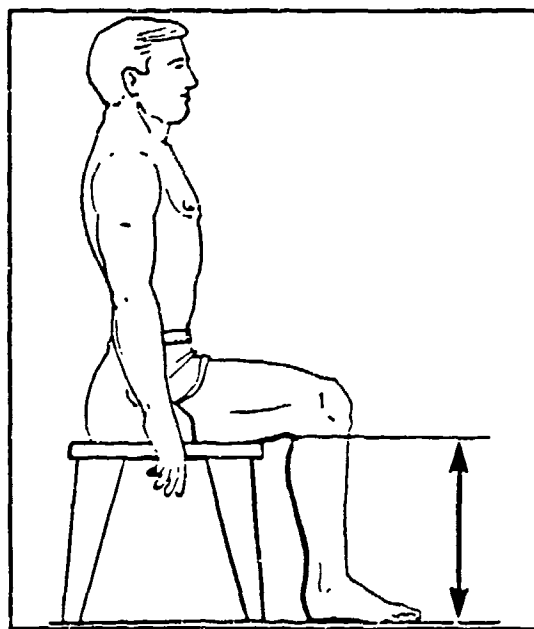
FEMALES			
<u>CM</u>		<u>INCHES</u>	
132.65	MEAN VALUE	52.22	
.12	SE (MEAN)	.05	
5.59	STD DEVIATION	2.20	
.08	SE (STD DEV)	.03	
112.90	MINIMUM	44.45	
151.40	MAXIMUM	59.61	
SYMMETRY---VETA I = -.03			
KURTOSIS---VETA II = 2.93			
COEF. OF VARIATION = 4.2%			
NUMBER OF SUBJECTS = 2208			

MALES			
<u>CM</u>		<u>INCHES</u>	
143.38	MEAN VALUE	56.45	
.14	SE (MEAN)	.06	
5.90	STD DEVIATION	2.32	
.10	SE (STD DEV)	.04	
116.40	MINIMUM	45.83	
169.30	MAXIMUM	66.65	
SYMMETRY---VETA I = -.03			
KURTOSIS---VETA II = 3.28			
COEF. OF VARIATION = 4.1%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct	CumF	CumFPct		
2	.09	2	.09	112.75 - 114.25							
1	.05	3	.14	114.25 - 115.75							
5	.23	8	.36	115.75 - 117.25			.06	1	.06		
6	.27	14	.63	117.25 - 118.75		0	.00	1	.06		
14	.63	28	1.27	118.75 - 120.25		0	.00	1	.06		
33	1.49	61	2.76	120.25 - 121.75		0	.00	1	.06		
44	1.99	105	4.76	121.75 - 123.25		0	.00	1	.06		
68	3.08	173	7.84	123.25 - 124.75		4	.23	5	.28		
100	4.53	273	12.36	124.75 - 126.25		0	.00	5	.28		
139	6.30	412	18.66	126.25 - 127.75		4	.23	9	.51		
198	8.97	610	27.63	127.75 - 129.25		9	.51	18	1.01		
225	10.19	835	37.82	129.25 - 130.75		10	.56	28	1.58		
219	9.92	1054	47.74	130.75 - 132.25		21	1.18	49	2.76		
200	9.06	1254	56.79	132.25 - 133.75		44	2.48	93	5.24		
229	10.37	1483	67.16	133.75 - 135.25		52	2.93	145	8.17		
190	8.61	1673	75.77	135.25 - 136.75		81	4.57	226	12.74		
191	8.65	1864	84.42	136.75 - 138.25		108	6.09	334	18.83		
121	5.48	1985	89.90	138.25 - 139.75		142	8.00	476	26.83		
96	4.35	2081	94.25	139.75 - 141.25		176	9.92	652	36.75		
53	2.40	2134	96.65	141.25 - 142.75		152	8.57	804	45.32		
35	1.59	2169	98.23	142.75 - 144.25		183	10.32	987	55.64		
23	1.04	2192	99.28	144.25 - 145.75		198	11.16	1185	66.80		
8	.36	2200	99.64	145.75 - 147.25		143	8.06	1328	74.86		
5	.23	2205	99.86	147.25 - 148.75		126	7.10	1454	81.96		
2	.09	2207	99.95	148.75 - 150.25		103	5.81	1557	87.77		
1	.05	2208	100.00	150.25 - 151.75		73	4.11	1630	91.88		
				151.75 - 153.25		64	3.61	1694	95.49		
				153.25 - 154.75		31	1.75	1725	97.24		
				154.75 - 156.25		26	1.47	1751	98.70		
				156.25 - 157.75		15	.85	1766	99.55		
				157.75 - 159.25		3	.17	1769	99.72		
				159.25 - 160.75		3	.17	1772	99.89		
				160.75 - 162.25		1	.06	1773	99.94		
				162.25 - 163.75		0	.00	1773	99.94		
				163.75 - 165.25		0	.00	1773	99.94		
				165.25 - 166.75		0	.00	1773	99.94		
				166.75 - 168.25		0	.00	1773	99.94		
				168.25 - 169.75		1	.06	1774	100.00		

## (86) POPLITEAL HEIGHT

The vertical distance from a footrest surface to the back of the right knee (the popliteal fossa at the dorsal juncture of the right calf and thigh) is measured with an anthropometer. The subject sits with the thighs parallel, the feet in line with the thighs, and the knees flexed 90 degrees.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
33.67	13.25	1ST	37.83	14.89	
34.24	13.48	2ND	38.49	15.15	
34.61	13.63	3RD	38.90	15.32	
35.13	13.83	5TH	39.46	15.53	
35.93	14.14	10TH	40.30	15.86	
36.48	14.36	15TH	40.86	16.09	
36.92	14.53	20TH	41.31	16.26	
37.30	14.69	25TH	41.70	16.42	
37.65	14.82	30TH	42.06	16.56	
37.98	14.95	35TH	42.39	16.69	
38.29	15.07	40TH	42.70	16.81	
38.59	15.19	45TH	43.01	16.93	
38.89	15.31	50TH	43.32	17.06	
39.19	15.43	55TH	43.63	17.18	
39.50	15.55	60TH	43.95	17.30	
39.82	15.68	65TH	44.28	17.43	
40.16	15.81	70TH	44.64	17.57	
40.53	15.96	75TH	45.03	17.73	
40.94	16.12	80TH	45.47	17.90	
41.42	16.31	85TH	45.98	18.10	
42.04	16.55	90TH	46.64	18.36	
42.94	16.91	95TH	47.63	18.75	
43.53	17.14	97TH	48.28	19.01	
43.96	17.31	98TH	48.75	19.19	
44.63	17.57	99TH	49.49	19.48	

# POPLITEAL HEIGHT

## FEMALES

CM		INCHES
38.94	MEAN VALUE	15.33
.05	SE(MEAN)	.02
2.37	STD DEVIATION	.93
.04	SE(STD DEV)	.00
29.90	MINIMUM	11.77
50.00	MAXIMUM	19.69

SYMMETRY---VETA I	=	.14
KURTOSIS---VETA II	=	3.11
COEF. OF VARIATION	=	6.1%
NUMBER OF SUBJECTS	=	2208

## MALES

CM		INCHES
43.41	MEAN VALUE	17.09
.06	SE(MEAN)	.02
2.49	STD DEVIATION	.98
.04	SE(STD DEV)	.02
33.80	MINIMUM	13.31
54.70	MAXIMUM	21.54

SYMMETRY---VETA I	=	.19
KURTOSIS---VETA II	=	3.32
COEF. OF VARIATION	=	5.7%
NUMBER OF SUBJECTS	=	1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
1	.05	1	.05
0	.00	1	.05
0	.00	1	.05
0	.00	1	.05
1	.05	2	.09
3	.14	5	.23
5	.23	10	.45
15	.68	25	1.13
20	.91	45	2.04
25	1.13	70	3.17
55	2.49	125	5.66
63	2.85	188	8.51
92	4.17	280	12.68
136	6.16	416	18.84
120	5.43	536	24.28
147	6.66	683	30.93
176	7.97	859	38.90
180	8.15	1039	47.06
209	9.47	1248	56.52
176	7.97	1424	64.49
148	6.70	1572	71.20
147	6.66	1719	77.85
117	5.30	1836	83.15
113	5.12	1949	88.27
76	3.44	2025	91.71
56	2.54	2081	94.25
39	1.77	2120	96.01
35	1.59	2155	97.60
24	1.09	2179	98.69
9	.41	2188	99.09
5	.23	2193	99.32
8	.36	2201	99.68
3	.14	2204	99.82
2	.09	2206	99.91
1	.05	2207	99.95
0	.00	2207	99.95
0	.00	2207	99.95
0	.00	2207	99.95
0	.00	2207	99.95
1	.05	2208	100.00

### CENTIMETERS

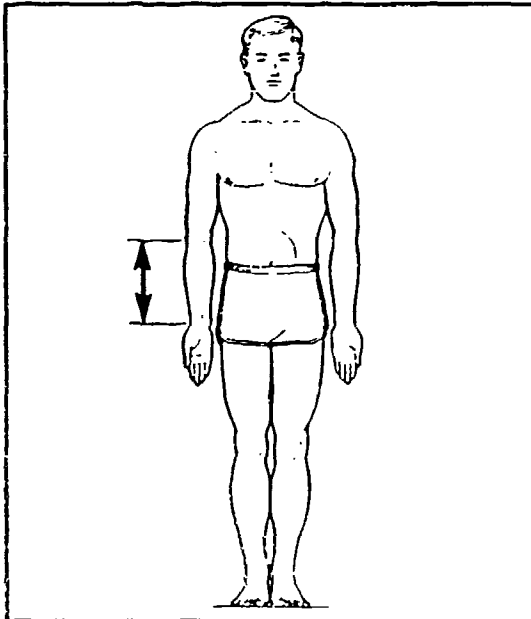
29.75 -	30.25
30.25 -	30.75
30.75 -	31.25
31.25 -	31.75
31.75 -	32.25
32.25 -	32.75
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33.25 -	33.75
33.75 -	34.25
34.25 -	34.75
34.75 -	35.25
35.25 -	35.75
35.75 -	36.25
36.25 -	36.75
36.75 -	37.25
37.25 -	37.75
37.75 -	38.25
38.25 -	38.75
38.75 -	39.25
39.25 -	39.75
39.75 -	40.25
40.25 -	40.75
40.75 -	41.25
41.25 -	41.75
41.75 -	42.25
42.25 -	42.75
42.75 -	43.25
43.25 -	43.75
43.75 -	44.25
44.25 -	44.75
44.75 -	45.25
45.25 -	45.75
45.75 -	46.25
46.25 -	46.75
46.75 -	47.25
47.25 -	47.75
47.75 -	48.25
48.25 -	48.75
48.75 -	49.25
49.25 -	49.75
49.75 -	50.25
50.25 -	50.75
50.75 -	51.25
51.25 -	51.75
51.75 -	52.25
52.25 -	52.75
52.75 -	53.25
53.25 -	53.75
53.75 -	54.25
54.25 -	54.75

### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
0	.00	1	.06
0	.00	1	.06
0	.00	1	.06
1	.06	2	.11
3	.17	5	.28
3	.17	8	.45
9	.51	17	.96
9	.51	26	1.47
17	.96	43	2.42
32	1.80	75	4.23
34	1.92	109	6.14
58	3.27	167	9.41
65	3.66	232	13.08
109	6.14	341	19.22
120	6.76	461	25.99
135	7.61	596	33.60
138	7.78	734	41.38
137	7.72	871	49.10
140	7.89	1011	56.99
117	6.60	1128	63.59
133	7.50	1261	71.08
108	6.09	1369	77.17
101	5.69	1470	82.86
81	4.57	1551	87.43
68	3.83	1619	91.26
41	2.31	1660	93.57
33	1.86	1693	95.43
33	1.86	1726	97.29
11	.62	1737	97.91
15	.85	1752	98.76
8	.45	1760	99.21
7	.39	1767	99.61
2	.11	1769	99.72
0	.00	1769	99.72
3	.17	1772	99.89
0	.00	1772	99.89
0	.00	1772	99.89
0	.00	1772	99.89
0	.00	1772	99.89
1	.06	1773	99.94
1	.06	1774	100.00

## (87) RADIALE-STYLION LENGTH

The distance between the radiale landmark on the right elbow and the stylium landmark on the right wrist is measured with a beam caliper held parallel to the long axis of the forearm. The subject stands with the arms relaxed at the sides. The hand and fingers are held straight in line with the long axis of the forearm.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
20.97	8.26	1ST	23.67	9.32
21.32	8.39	2ND	24.01	9.45
21.55	8.49	3RD	24.23	9.54
21.87	8.61	5TH	24.54	9.66
22.39	8.81	10TH	25.03	9.85
22.74	8.95	15TH	25.37	9.99
23.03	9.07	20TH	25.65	10.10
23.28	9.16	25TH	25.89	10.19
23.50	9.25	30TH	26.11	10.28
23.71	9.33	35TH	26.32	10.36
23.91	9.41	40TH	26.52	10.44
24.10	9.49	45TH	26.72	10.52
24.30	9.57	50TH	26.92	10.60
24.49	9.64	55TH	27.12	10.68
24.69	9.72	60TH	27.32	10.76
24.89	9.80	65TH	27.53	10.84
25.11	9.89	70TH	27.76	10.93
25.35	9.98	75TH	28.01	11.03
25.62	10.09	80TH	28.29	11.14
25.93	10.21	85TH	28.62	11.27
26.33	10.37	90TH	29.05	11.44
26.94	10.61	95TH	29.69	11.69
27.35	10.77	97TH	30.11	11.85
27.65	10.89	98TH	30.42	11.98
28.14	11.08	99TH	30.92	12.17

# RADIALE-STYLION LENGTH

FEMALES			
<u>CM</u>		<u>INCHES</u>	
24.34	MEAN VALUE	9.58	
.03	SE (MEAN)	.00	
1.55	STD DEVIATION	.61	
.02	SE (STD DEV)	.00	
15.70	MINIMUM	6.18	
31.20	MAXIMUM	12.28	
SYMMETRY---VETA I = .14			
KURTOSIS---VETA II = 3.48			
COEF. OF VARIATION = 6.3%			
NUMBER OF SUBJECTS = 2208			

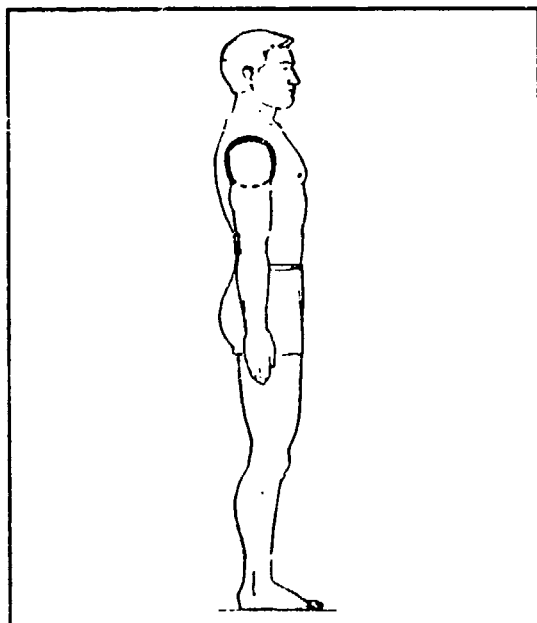
MALES			
<u>CM</u>		<u>INCHES</u>	
26.99	MEAN VALUE	10.62	
.04	SE (MEAN)	.00	
1.57	STD DEVIATION	.62	
.03	SE (STD DEV)	.00	
21.20	MINIMUM	8.35	
32.50	MAXIMUM	12.80	
SYMMETRY---VETA I = .21			
KURTOSIS---VETA II = 3.10			
COEF. OF VARIATION = 5.8%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct	CumF	CumFPct		
1	.05	1	.05	15.25 -	15.75						
0	.00	1	.05	15.75 -	16.25						
0	.00	1	.05	16.25 -	16.75						
0	.00	1	.05	16.75 -	17.25						
0	.00	1	.05	17.25 -	17.75						
0	.00	1	.05	17.75 -	18.25						
0	.00	1	.05	18.25 -	18.75						
0	.00	1	.05	18.75 -	19.25						
1	.05	2	.09	19.25 -	19.75						
3	.14	5	.23	19.75 -	20.25						
9	.41	14	.63	20.25 -	20.75						
23	1.04	37	1.68	20.75 -	21.25	1	.06	1	.06		
41	1.86	78	3.53	21.25 -	21.75	0	.00	1	.06		
111	5.03	189	8.56	21.75 -	22.25	2	.11	3	.17		
145	6.57	334	15.13	22.25 -	22.75	1	.06	4	.23		
203	9.19	537	24.32	22.75 -	23.25	5	.28	9	.51		
278	12.59	815	36.91	23.25 -	23.75	14	.79	23	1.30		
253	11.46	1068	48.37	23.75 -	24.25	32	1.80	55	3.10		
285	12.91	1353	61.28	24.25 -	24.75	67	3.78	122	6.88		
259	11.73	1612	73.01	24.75 -	25.25	103	5.81	225	12.68		
199	9.01	1811	82.02	25.25 -	25.75	172	9.70	397	22.38		
160	7.25	1971	89.27	25.75 -	26.25	192	10.82	589	33.20		
111	5.03	2082	94.29	26.25 -	26.75	230	12.97	819	46.17		
52	2.36	2134	96.65	26.75 -	27.25	222	12.51	1041	58.68		
40	1.81	2174	98.46	27.25 -	27.75	192	10.82	1233	69.50		
14	.63	2188	99.09	27.75 -	28.25	186	10.48	1419	79.99		
13	.59	2201	99.68	28.25 -	28.75	122	6.88	1541	86.87		
4	.18	2205	99.86	28.75 -	29.25	89	5.02	1630	91.88		
0	.00	2205	99.86	29.25 -	29.75	58	3.27	1688	95.15		
1	.05	2206	99.91	29.75 -	30.25	43	2.42	1731	97.58		
1	.05	2207	99.95	30.25 -	30.75	21	1.18	1752	98.76		
1	.05	2208	100.00	30.75 -	31.25	13	.73	1765	99.49		
				31.25 -	31.75	4	.23	1769	99.72		
				31.75 -	32.25	4	.23	1773	99.94		
				32.25 -	32.75	1	.06	1774	100.00		



## (88) SCYE CIRCUMFERENCE

The vertical circumference of the right upper arm (scye) is measured with a tape passing through the armpit and over the acromion landmark on the tip of the shoulder. The subject stands erect looking straight ahead. The shoulders and upper extremities are relaxed with the palms facing the thighs.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
32.40	12.76	1ST	38.42	15.13	
32.87	12.94	2ND	39.18	15.43	
33.18	13.06	3RD	39.65	15.61	
33.62	13.24	5TH	40.27	15.85	
34.32	13.51	10TH	41.20	16.22	
34.80	13.70	15TH	41.82	16.47	
35.20	13.86	20TH	42.31	16.66	
35.55	13.99	25TH	42.73	16.82	
35.86	14.12	30TH	43.11	16.97	
36.16	14.23	35TH	43.46	17.11	
36.44	14.35	40TH	43.80	17.24	
36.72	14.46	45TH	44.13	17.37	
37.00	14.57	50TH	44.46	17.50	
37.28	14.68	55TH	44.79	17.63	
37.58	14.79	60TH	45.12	17.77	
37.88	14.92	65TH	45.48	17.90	
38.21	15.05	70TH	45.85	18.05	
38.58	15.19	75TH	46.27	18.22	
39.00	15.35	80TH	46.74	18.40	
39.50	15.55	85TH	47.30	18.62	
40.16	15.81	90TH	48.02	18.91	
41.19	16.22	95TH	49.13	19.34	
41.91	16.50	97TH	49.88	19.64	
42.46	16.72	98TH	50.45	19.86	
43.38	17.08	99TH	51.36	20.22	

# SCYE CIRCUMFERENCE

## FEMALES

CM		INCHES
37.13	MEAN VALUE	14.62
.05	SE (MEAN)	.02
2.30	STD DEVIATION	.91
.03	SE (STD DEV)	.00
29.80	MINIMUM	11.73
45.60	MAXIMUM	17.95

SYMMETRY---VETA I = .39  
 KURTOSIS---VETA II = 3.30  
 COEF. OF VARIATION = 6.2%  
 NUMBER OF SUBJECTS = 2208

## MALES

CM		INCHES
44.55	MEAN VALUE	17.54
.06	SE (MEAN)	.03
2.71	STD DEVIATION	1.07
.05	SE (STD DEV)	.02
35.80	MINIMUM	14.09
55.30	MAXIMUM	21.77

SYMMETRY---VETA I = .24  
 KURTOSIS---VETA II = 3.41  
 COEF. OF VARIATION = 6.1%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

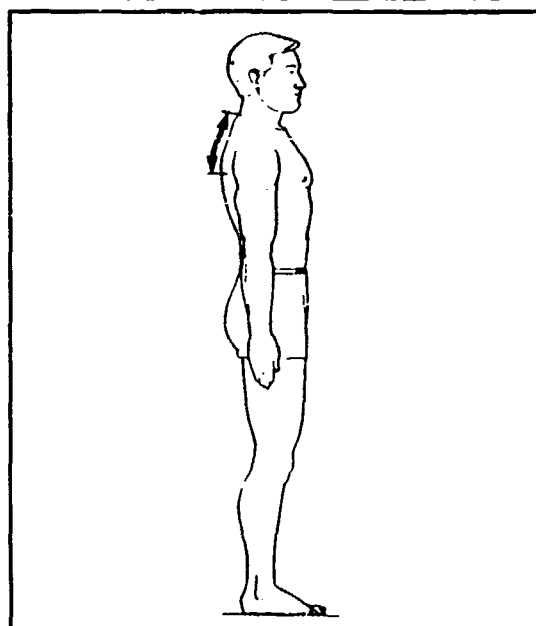
F	FPct	CumF	CumFPct
1	.05	1	.05
2	.09	3	.14
3	.14	6	.27
2	.09	8	.36
8	.36	16	.72
18	.82	34	1.54
41	1.86	75	3.40
54	2.45	129	5.84
72	3.26	201	9.10
100	4.53	301	13.63
153	6.93	454	20.56
160	7.25	614	27.81
195	8.83	809	36.64
198	8.97	1007	45.61
200	9.06	1207	54.66
200	9.06	1407	63.72
163	7.38	1570	71.11
132	5.98	1702	77.08
119	5.39	1821	82.47
92	4.17	1913	86.64
73	3.31	1986	89.95
62	2.81	2048	92.75
59	2.67	2107	95.43
29	1.31	2136	96.74
75	1.13	2161	97.87
10	.45	2171	98.32
12	.54	2183	98.87
8	.36	2191	99.23
11	.50	2202	99.73
0	.00	2202	99.73
4	.18	2206	99.91
2	.09	2208	100.00

### MALES

F	FPct	CumF	CumFPct
2	.11	2	.11
1	.06	3	.17
4	.23	7	.39
2	.11	9	.51
5	.28	14	.79
9	.51	23	1.30
18	1.01	41	2.31
17	.96	58	3.27
28	1.58	86	4.85
22	1.24	108	6.09
57	3.21	165	9.30
76	4.28	241	13.59
102	5.75	343	19.33
107	6.03	450	25.37
124	6.99	574	32.36
131	7.38	705	39.74
143	8.06	848	47.80
137	7.72	985	55.52
118	6.65	1103	62.18
113	6.37	1216	68.55
95	5.36	1311	73.90
91	5.13	1402	79.03
88	4.96	1490	83.99
62	3.49	1552	87.49
62	3.49	1614	90.98
50	2.82	1664	93.80
35	1.97	1699	95.77
25	1.41	1724	97.18
11	.62	1735	97.80
11	.62	1746	98.42
6	.34	1752	98.76
9	.51	1761	99.27
1	.06	1762	99.32
5	.28	1767	99.61
1	.06	1768	99.66
0	.00	1768	99.66
2	.11	1770	99.77
1	.06	1771	99.83
2	.11	1773	99.94
1	.06	1774	100.00

## (89) SCYE DEPTH

The surface distance along the spine between the cervicale landmark on the base of the back of the neck and the scye-level-at-midspine landmark is measured with a tape. The subject stands erect with the head in the Frankfort plane. The shoulders and upper extremities are relaxed.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
15.31	6.03	1ST	17.17	6.99	
15.70	6.18	2ND	18.11	7.13	
15.95	6.28	3RD	18.35	7.22	
16.27	6.41	5TH	18.70	7.36	
16.77	6.60	10TH	19.26	7.58	
17.10	6.73	15TH	19.66	7.74	
17.36	6.83	20TH	19.97	7.86	
17.59	6.92	25TH	20.24	7.97	
17.79	7.01	30TH	20.47	8.06	
17.99	7.08	35TH	20.69	8.15	
18.17	7.15	40TH	20.90	8.23	
18.35	7.22	45TH	21.09	8.30	
18.53	7.30	50TH	21.28	8.38	
18.71	7.37	55TH	21.47	8.45	
18.90	7.44	60TH	21.66	8.53	
19.10	7.52	65TH	21.86	8.61	
19.30	7.60	70TH	22.06	8.69	
19.53	7.69	75TH	22.28	8.77	
19.79	7.79	80TH	22.53	8.87	
20.09	7.91	85TH	22.82	8.98	
20.47	8.06	90TH	23.19	9.13	
21.04	8.28	95TH	23.77	9.36	
21.40	8.43	97TH	24.18	9.52	
21.67	8.53	98TH	24.50	9.64	
22.08	8.69	99TH	25.05	9.86	

# SCYE DEPTH

## FEMALES

CM		INCHES
18.57	MEAN VALUE	7.31
.03	SE(MEAN)	.00
1.44	STD DEVIATION	.57
.02	SE(STD DEV)	.00
14.20	MINIMUM	5.59
23.50	MAXIMUM	9.25

SYMMETRY---VETA I = .13  
 KURTOSIS---VETA II = 2.93  
 COEF. OF VARIATION = 7.8%  
 NUMBER OF SUBJECTS = 2208

## MALES

CM		INCHES
21.27	MEAN VALUE	8.38
.04	SE(MEAN)	.00
1.55	STD DEVIATION	.61
.03	SE(STD DEV)	.00
16.60	MINIMUM	6.54
28.40	MAXIMUM	11.18

SYMMETRY---VETA I = .15  
 KURTOSIS---VETA II = 3.46  
 COEF. OF VARIATION = 7.3%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
1	.05	1	.05
4	.18	5	.23
12	.54	17	.77
28	1.27	45	2.04
64	2.90	109	4.94
116	5.25	225	10.19
173	7.84	398	18.03
237	10.73	635	28.76
290	13.13	925	41.89
321	14.54	1246	56.43
261	11.82	1507	68.25
251	11.37	1758	79.62
178	8.06	1936	87.68
118	5.34	2054	93.03
68	3.08	2122	96.11
47	2.13	2169	98.23
24	1.09	2193	99.32
10	.45	2203	99.77
4	.18	2207	99.95
1	.05	2208	100.00

### CENTIMETERS

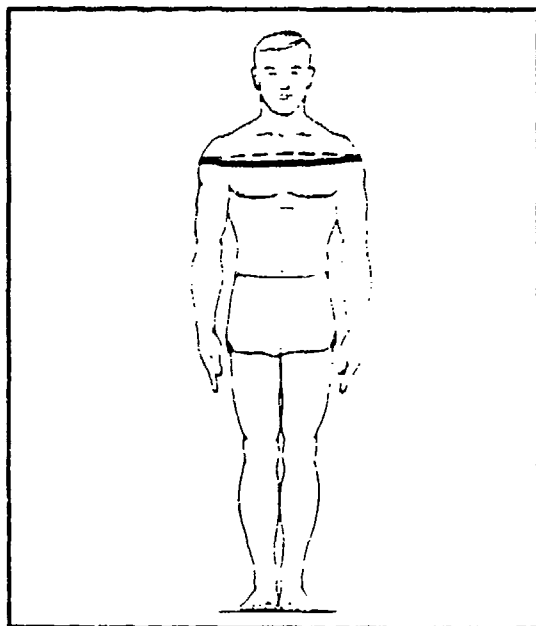
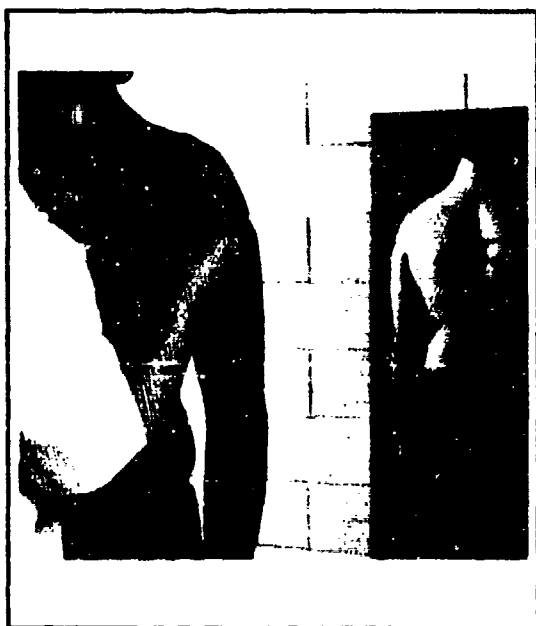
13.75 - 14.25
14.25 - 14.75
14.75 - 15.25
15.25 - 15.75
15.75 - 16.25
16.25 - 16.75
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17.25 - 17.75
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18.25 - 18.75
18.75 - 19.25
19.25 - 19.75
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21.25 - 21.75
21.75 - 22.25
22.25 - 22.75
22.75 - 23.25
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23.75 - 24.25
24.25 - 24.75
24.75 - 25.25
25.25 - 25.75
25.75 - 26.25
26.25 - 26.75
26.75 - 27.25
27.25 - 27.75
27.75 - 28.25
28.25 - 28.75

### MALES

F	FPct	CumF	CumFPct
4	.23	4	.23
2	.11	6	.34
10	.56	16	.90
31	1.75	47	2.65
46	2.59	93	5.24
85	4.79	178	10.03
110	6.20	288	16.23
156	8.79	444	25.03
179	10.09	623	35.12
252	14.21	875	49.32
241	13.59	1116	62.91
217	12.23	1333	75.14
138	7.78	1471	82.92
128	7.22	1599	90.14
83	4.68	1682	94.81
53	2.99	1735	97.80
14	.79	1749	98.59
11	.62	1760	99.21
6	.34	1766	99.55
3	.17	1769	99.72
1	.06	1770	99.77
2	.11	1772	99.89
0	.00	1772	99.89
0	.00	1772	99.89
2	.11	1774	100.00

## (90) SHOULDER CIRCUMFERENCE

The horizontal circumference of the shoulders at the level of the maximum protrusion of the right deltoid muscle is measured with a tape. The subject stands erect looking straight ahead. The shoulders and upper extremities are relaxed with the palms facing the thighs. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
91.38	35.98	1ST	103.66	40.81
92.71	36.50	2ND	105.32	41.46
93.54	36.83	3RD	106.36	41.87
94.64	37.26	5TH	107.77	42.43
96.32	37.92	10TH	109.92	43.28
97.44	38.36	15TH	111.37	43.84
98.34	38.72	20TH	112.50	44.29
99.12	39.02	25TH	113.49	44.68
99.82	39.30	30TH	114.37	45.03
100.48	39.56	35TH	115.18	45.35
101.12	39.81	40TH	115.95	45.65
101.74	40.06	45TH	116.70	45.94
102.37	40.30	50TH	117.44	46.24
103.00	40.55	55TH	118.19	46.53
103.66	40.81	60TH	118.94	46.83
104.35	41.08	65TH	119.73	47.14
105.10	41.38	70TH	120.56	47.47
105.92	41.70	75TH	121.47	47.82
106.87	42.08	80TH	122.50	48.23
108.01	42.52	85TH	123.70	48.70
109.50	43.11	90TH	125.25	49.31
111.85	44.03	95TH	127.61	50.24
113.46	44.67	97TH	129.19	50.86
114.68	45.15	98TH	130.38	51.33
116.70	45.94	99TH	132.30	52.09

# SHOULDER CIRCUMFERENCE

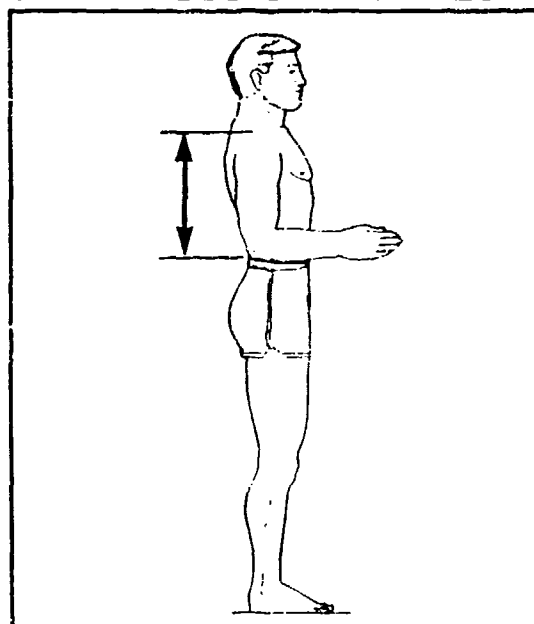
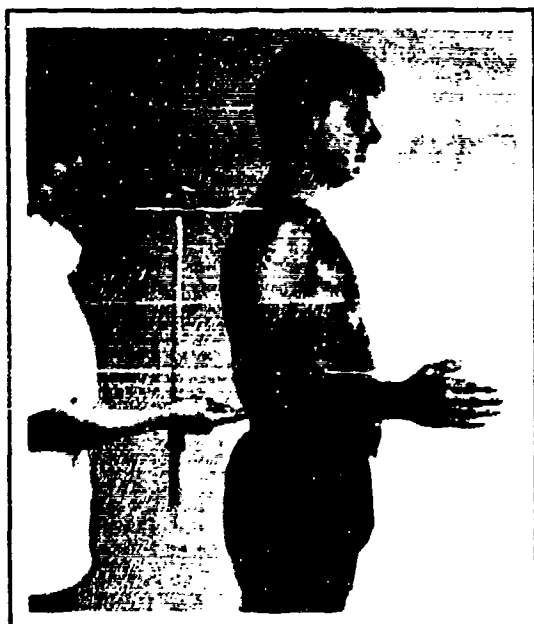
FEMALES			
CM		INCHES	
102.69	MEAN VALUE	40.43	
.11	SE(MEAN)	.04	
5.22	STD DEVIATION	2.05	
.08	SE(STD DEV)	.03	
86.20	MINIMUM	33.94	
126.10	MAXIMUM	49.65	
SYMMETRY---VETA I = .36			
KURTOSIS---VETA II = 3.32			
COEF. OF VARIATION = 5.1%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
117.52	MEAN VALUE	46.27	
.14	SE(MEAN)	.06	
6.04	STD DEVIATION	2.38	
.10	SE(STD DEV)	.04	
96.60	MINIMUM	38.03	
142.40	MAXIMUM	56.06	
SYMMETRY---VETA I = .08			
KURTOSIS---VETA II = 3.22			
COEF. OF VARIATION = 5.1%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	85.75 - 87.25		1	.06	1	.06		
1	.05	2	.09	87.25 - 88.75		0	.00	1	.06		
7	.32	9	.41	88.75 - 90.25		7	.39	8	.45		
18	.82	27	1.22	90.25 - 91.75		5	.28	13	.73		
31	1.40	58	2.63	91.75 - 93.25		5	.28	18	1.01		
59	2.67	117	5.30	93.25 - 94.75		15	.85	33	1.86		
96	4.35	213	9.65	94.75 - 96.25		29	1.63	62	3.49		
154	6.97	367	16.62	96.25 - 97.75		37	2.09	99	5.58		
202	9.15	569	25.77	97.75 - 99.25		67	3.78	166	9.36		
246	11.14	915	36.91	99.25 - 100.75		94	5.30	260	14.66		
269	12.18	1084	49.09	100.75 - 102.25		118	6.65	378	21.31		
259	11.73	1343	60.82	102.25 - 103.75		140	7.89	518	29.20		
228	10.33	1571	71.15	103.75 - 105.25		160	9.02	678	38.22		
195	8.83	1766	79.98	105.25 - 106.75		192	10.82	870	49.04		
140	6.34	1906	86.32	106.75 - 108.25		171	9.64	1041	58.68		
88	3.99	1994	90.31	108.25 - 109.75		169	9.53	1210	68.21		
77	3.49	2071	93.80	109.75 - 111.25		152	8.57	1362	76.78		
56	2.54	2127	96.33	111.25 - 112.75		123	6.93	1485	83.71		
32	1.45	2159	97.78	112.75 - 114.25		82	4.62	1567	88.33		
16	.72	2175	98.51	114.25 - 115.75		69	3.89	1636	92.22		
16	.72	2191	99.23	115.75 - 117.25		50	2.82	1686	95.04		
10	.45	2201	99.68	117.25 - 118.75		37	2.09	1723	97.13		
4	.18	2205	99.86	118.75 - 120.25		22	1.24	1745	98.37		
2	.09	2207	99.95	120.25 - 121.75		10	.56	1755	98.93		
0	.00	2207	99.95	121.75 - 123.25		13	.73	1768	99.66		
0	.00	2207	99.95	123.25 - 124.75		2	.11	1770	99.77		
1	.05	2208	100.00	124.75 - 126.25		1	.06	1771	99.83		
				126.25 - 127.75		1	.06	1772	99.89		
				127.75 - 129.25		0	.00	1772	99.89		
				129.25 - 130.75		1	.06	1773	99.94		
				130.75 - 132.25		1	.06	1774	100.00		
				132.25 - 133.75							
				133.75 - 135.25							
				135.25 - 136.75							
				136.75 - 138.25							
				138.25 - 139.75							
				139.75 - 141.25							
				141.25 - 142.75							

## (91) SHOULDER-ELBOW LENGTH

The distance between the acromion landmark on the tip of the right shoulder and the olecranon landmark on the bottom of the right elbow is measured with a beam caliper parallel to the long axis of the upper arm. The subject stands with the right upper arm hanging at the side and the elbow flexed 90 degrees. The hand is straight and the palm faces inward.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
29.62	11.66	1ST	32.88	12.94	
30.08	11.84	2ND	33.33	13.12	
30.37	11.96	3RD	33.62	13.24	
30.76	12.11	5TH	34.02	13.39	
31.36	12.35	10TH	34.64	13.64	
31.77	12.51	15TH	35.06	13.80	
32.09	12.64	20TH	35.40	13.94	
32.38	12.75	25TH	35.69	14.05	
32.63	12.85	30TH	35.95	14.15	
32.87	12.94	35TH	36.20	14.25	
33.10	13.03	40TH	36.43	14.34	
33.32	13.12	45TH	36.66	14.43	
33.54	13.20	50TH	36.88	14.52	
33.76	13.29	55TH	37.11	14.61	
33.98	13.38	60TH	37.34	14.70	
34.22	13.47	65TH	37.58	14.79	
34.47	13.57	70TH	37.83	14.89	
34.74	13.68	75TH	38.10	15.00	
35.05	13.80	80TH	38.41	15.12	
35.40	13.94	85TH	38.76	15.26	
35.85	14.11	90TH	39.21	15.44	
36.51	14.37	95TH	39.88	15.70	
36.92	14.54	97TH	40.31	15.87	
37.23	14.66	98TH	40.63	16.00	
37.69	14.84	99TH	41.13	16.19	

# SHOULDER-ELBOW LENGTH

FEMALES			
CM		INCHES	
33.58	MEAN VALUE	13.22	
.04	SE(MEAN)	.00	
1.74	STD DEVIATION	.68	
.03	SE(STD DEV)	.00	
28.20	MINIMUM	11.10	
40.10	MAXIMUM	15.79	
SYMMETRY---VETA I = .13			
KURTOSIS---VETA II = 3.02			
COEF. OF VARIATION = 5.2%			
NUMBER OF SUBJECTS = 2208			

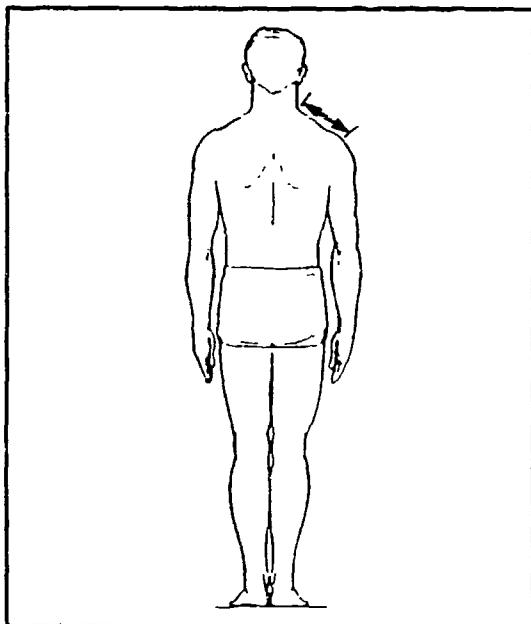
MALES			
CM		INCHES	
36.90	MEAN VALUE	14.53	
.04	SE(MEAN)	.02	
1.79	STD DEVIATION	.71	
.03	SE(STD DEV)	.00	
29.70	MINIMUM	11.69	
44.60	MAXIMUM	17.56	
SYMMETRY---VETA I = .08			
KURTOSIS---VETA II = 3.25			
COEF. OF VARIATION = 4.9%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	27.75 - 28.25		1	.06	1	.06		
1	.05	2	.09	28.25 - 28.75		0	.00	1	.06		
8	.36	10	.45	28.75 - 29.25		0	.00	1	.06		
19	.86	29	1.31	29.25 - 29.75		0	.00	1	.06		
32	1.45	61	2.76	29.75 - 30.25		3	.17	4	.23		
50	2.26	111	5.03	30.25 - 30.75		4	.23	8	.45		
69	3.13	180	8.15	30.75 - 31.25		10	.56	18	1.01		
133	6.02	313	14.18	31.25 - 31.75		15	.85	33	1.86		
189	8.56	502	22.74	31.75 - 32.25		31	1.75	64	3.61		
219	9.92	721	32.65	32.25 - 32.75		46	2.59	110	6.20		
220	9.96	941	42.62	32.75 - 33.25		91	5.13	201	11.33		
276	12.50	1217	55.12	33.25 - 33.75		117	6.60	318	17.93		
253	11.46	1470	66.58	33.75 - 34.25		144	8.12	462	26.04		
207	9.38	1677	75.95	34.25 - 34.75		185	10.43	647	36.47		
170	7.70	1847	83.65	34.75 - 35.25		204	11.50	851	47.97		
119	5.39	1966	89.04	35.25 - 35.75		192	10.82	1043	58.79		
97	4.39	2063	93.43	35.75 - 36.25		166	9.36	1209	68.15		
58	2.63	2121	96.06	36.25 - 36.75		156	8.79	1365	76.94		
40	1.81	2161	97.87	36.75 - 37.25		146	8.23	1511	85.17		
29	1.31	2190	99.18	37.25 - 37.75		106	5.98	1617	91.15		
6	.27	2196	99.46	37.75 - 38.25		56	3.16	1673	94.31		
5	.23	2201	99.68	38.25 - 38.75		50	2.82	1723	97.13		
5	.23	2206	99.91	38.75 - 39.25		19	1.07	1742	98.20		
1	.05	2207	99.95	39.25 - 39.75		19	1.07	1761	99.27		
1	.05	2208	100.00	39.75 - 40.25		7	.39	1768	99.66		
				40.25 - 40.75		3	.17	1771	99.83		
				40.75 - 41.25		0	.00	1771	99.83		
				41.25 - 41.75		1	.06	1772	99.89		
				41.75 - 42.25		0	.00	1772	99.89		
				42.25 - 42.75		0	.00	1772	99.89		
				42.75 - 43.25		2	.11	1774	100.00		
				43.25 - 43.75							
				43.75 - 44.25							
				44.25 - 44.75							



## (92) SHOULDER LENGTH

The surface distance between the trapezius landmark at the base of the side of the neck and the acromion landmark on the tip of the right shoulder is measured with a tape. The subject stands looking straight ahead. The shoulders and upper extremities are relaxed.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
11.97	4.71	1ST	12.44	4.90	
12.23	4.82	2ND	12.79	5.03	
12.41	4.89	3RD	12.99	5.12	
12.66	4.98	5TH	13.26	5.22	
13.05	5.14	10TH	13.66	5.38	
13.33	5.25	15TH	13.92	5.48	
13.54	5.33	20TH	14.13	5.56	
13.73	5.41	25TH	14.30	5.63	
13.90	5.47	30TH	14.46	5.69	
14.05	5.53	35TH	14.61	5.75	
14.20	5.59	40TH	14.75	5.81	
14.34	5.64	45TH	14.89	5.86	
14.47	5.70	50TH	15.02	5.92	
14.61	5.75	55TH	15.16	5.97	
14.74	5.80	60TH	15.30	6.03	
14.88	5.86	65TH	15.45	6.08	
15.03	5.92	70TH	15.61	6.15	
15.19	5.98	75TH	15.78	6.21	
15.37	6.05	80TH	15.98	6.29	
15.57	6.13	85TH	16.20	6.38	
15.84	6.24	90TH	16.49	6.49	
16.24	6.39	95TH	16.91	6.66	
16.51	6.50	97TH	17.18	6.76	
16.73	6.59	98TH	17.37	6.84	
17.08	6.72	99TH	17.66	6.95	

# SHOULDER LENGTH

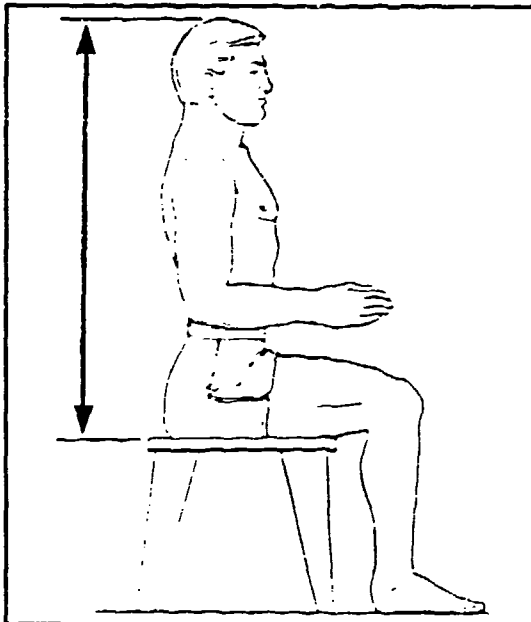
FEMALES			
<u>CM</u>		<u>INCHES</u>	
14.47	MEAN VALUE	5.70	
.02	SE(MEAN)	.00	
1.08	STD DEVIATION	.43	
.02	SE(STD DEV)	.00	
11.10	MINIMUM	4.37	
18.20	MAXIMUM	7.17	
SYMMETRY---VETA I = .05			
KURTOSIS---VETA II = 2.99			
COEF. OF VARIATION = 7.5%			
NUMBER OF SUBJECTS = 2208			

MALES			
<u>CM</u>		<u>INCHES</u>	
15.05	MEAN VALUE	5.92	
.03	SE(MEAN)	.00	
1.10	STD DEVIATION	.43	
.02	SE(STD DEV)	.00	
11.40	MINIMUM	4.49	
18.50	MAXIMUM	7.28	
SYMMETRY---VETA I = .05			
KURTOSIS---VETA II = 3.01			
COEF. OF VARIATION = 7.3%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct	CumF	CumFPct		
1	.05	1	.05	10.95 -	11.15						
1	.05	2	.09	11.15 -	11.35						
3	.14	5	.23	11.35 -	11.55	1	.06	1	.06		
3	.14	8	.36	11.55 -	11.75	1	.06	2	.11		
10	.45	18	.82	11.75 -	11.95	3	.17	5	.28		
19	.86	37	1.68	11.95 -	12.15	5	.28	10	.56		
24	1.09	61	2.76	12.15 -	12.35	5	.28	15	.85		
27	1.22	88	3.99	12.35 -	12.55	7	.39	22	1.24		
38	1.72	126	5.71	12.55 -	12.75	10	.56	32	1.80		
51	2.31	177	8.02	12.75 -	12.95	14	.79	46	2.59		
74	3.35	251	11.37	12.95 -	13.15	28	1.58	74	4.17		
83	3.76	334	15.13	13.15 -	13.35	27	1.52	101	5.69		
116	5.25	450	20.38	13.35 -	13.55	50	2.82	151	8.51		
113	5.12	563	25.50	13.55 -	13.75	52	2.93	203	11.44		
131	5.93	694	31.43	13.75 -	13.95	71	4.00	274	15.45		
141	6.39	835	37.82	13.95 -	14.15	78	4.40	352	19.84		
169	7.65	1004	45.47	14.15 -	14.35	125	7.05	477	26.89		
197	8.92	1201	54.39	14.35 -	14.55	121	6.82	598	33.71		
131	5.93	1332	60.33	14.55 -	14.75	118	6.65	716	40.36		
151	6.84	1483	67.16	14.75 -	14.95	121	6.82	837	47.18		
132	5.98	1615	73.14	14.95 -	15.15	126	7.10	963	54.28		
145	6.57	1760	79.71	15.15 -	15.35	134	7.55	1097	61.84		
100	4.53	1860	84.24	15.35 -	15.55	106	5.98	1203	67.81		
91	4.12	1951	88.36	15.55 -	15.75	101	5.69	1304	73.51		
71	3.22	2022	91.58	15.75 -	15.95	110	6.20	1414	79.71		
56	2.54	2078	94.11	15.95 -	16.15	74	4.17	1488	83.88		
48	2.17	2126	96.29	16.15 -	16.35	64	3.61	1552	87.49		
26	1.18	2152	97.46	16.35 -	16.55	67	3.78	1619	91.26		
11	.50	2163	97.96	16.55 -	16.75	44	2.48	1663	93.74		
14	.63	2177	98.60	16.75 -	16.95	30	1.69	1693	95.43		
14	.63	2191	99.23	16.95 -	17.15	25	1.41	1718	96.84		
5	.23	2196	99.46	17.15 -	17.35	20	1.13	1738	97.97		
3	.14	2199	99.59	17.35 -	17.55	14	.79	1752	98.76		
3	.14	2202	99.73	17.55 -	17.75	7	.39	1759	99.15		
4	.18	2206	99.91	17.75 -	17.95	6	.34	1765	99.49		
1	.05	2207	99.95	17.95 -	18.15	3	.17	1768	99.66		
1	.05	2208	100.00	18.15 -	18.35	3	.17	1771	99.83		
				18.35 -	18.55	3	.17	1774	100.00		

## (93) SITTING HEIGHT

The vertical distance between a sitting surface and the top of the head is measured with an anthropometer. The subject sits erect with the head in the Frankfort plane. The shoulders and upper arms are relaxed and the forearms and hands are extended forward horizontally with the palms facing each other. The thighs are parallel and the knees are flexed 90 degrees with the feet in line with the thighs. The measurement is made at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
77.48	30.50	1ST	82.79	32.59
78.27	30.81	2ND	83.88	33.02
78.79	31.02	3RD	84.55	33.29
79.53	31.31	5TH	85.45	33.64
80.70	31.77	10TH	86.79	34.17
81.52	32.09	15TH	87.68	34.52
82.18	32.35	20TH	88.38	34.80
82.76	32.58	25TH	88.99	35.03
83.28	32.79	30TH	89.53	35.25
83.77	32.98	35TH	90.03	35.44
84.23	33.16	40TH	90.51	35.63
84.69	33.34	45TH	90.97	35.81
85.14	33.52	50TH	91.42	35.99
85.59	33.70	55TH	91.88	36.17
86.05	33.88	60TH	92.34	36.35
86.52	34.06	65TH	92.82	36.54
87.02	34.26	70TH	93.32	36.74
87.57	34.48	75TH	93.86	36.95
88.17	34.71	80TH	94.46	37.19
88.87	34.99	85TH	95.14	37.46
89.75	35.33	90TH	95.99	37.79
91.02	35.84	95TH	97.19	38.26
91.83	36.15	97TH	97.91	38.55
92.42	36.38	98TH	98.42	38.75
93.31	36.74	99TH	99.14	39.03

# SITTING HEIGHT

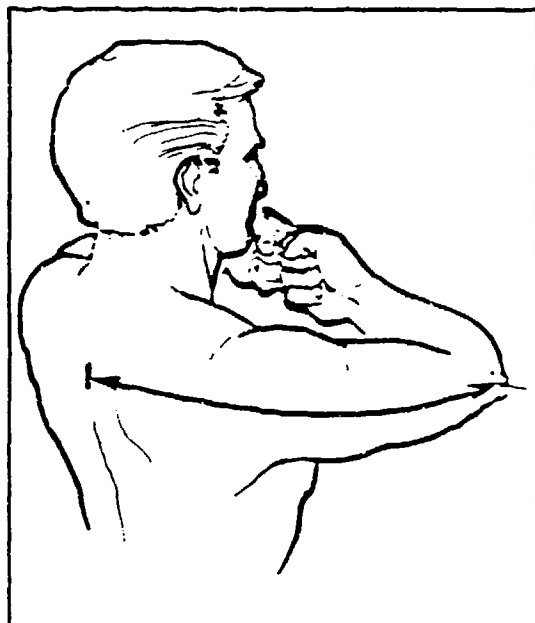
FEMALES			
<u>CM</u>		<u>INCHES</u>	
85.20	MEAN VALUE	33.54	
.07	SE (MEAN)	.03	
3.49	STD DEVIATION	1.37	
.05	SE (STD DEV)	.02	
74.80	MINIMUM	29.45	
97.10	MAXIMUM	38.23	
SYMMETRY---VETA I = .09			
KURTOSIS---VETA II = 2.82			
COEF. OF VARIATION = 4.1%			
NUMBER OF SUBJECTS = 2208			

MALES			
<u>CM</u>		<u>INCHES</u>	
91.39	MEAN VALUE	35.98	
.08	SE (MEAN)	.03	
3.56	STD DEVIATION	1.40	
.06	SE (STD DEV)	.02	
80.80	MINIMUM	31.81	
103.20	MAXIMUM	40.63	
SYMMETRY---VETA I = -.06			
KURTOSIS---VETA II = 2.87			
COEF. OF VARIATION = 3.9%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
<u>P</u>	<u>FPct</u>	<u>CumF</u>	<u>CumFPct</u>	<u>CENTIMETERS</u>		<u>P</u>	<u>FPct</u>	<u>CumF</u>	<u>CumFPct</u>		
3	.14	3	.14	74.55 - 75.55							
7	.32	10	.45	75.55 - 76.55							
13	.59	23	1.04	76.55 - 77.55							
34	1.54	57	2.58	77.55 - 78.55							
54	2.45	111	5.03	78.55 - 79.55							
84	3.80	195	8.83	79.55 - 80.55							
134	6.07	329	14.90	80.55 - 81.55		5	.28	5	.28		
176	7.97	505	22.87	81.55 - 82.55		9	.51	14	.79		
231	10.46	736	33.33	82.55 - 83.55		16	.90	30	1.69		
239	10.82	975	44.16	83.55 - 84.55		23	1.30	53	2.99		
238	10.78	1213	54.94	84.55 - 85.55		37	2.09	90	5.07		
210	9.51	1423	64.45	85.55 - 86.55		61	3.44	151	8.51		
226	10.24	1649	74.68	86.55 - 87.55		99	5.58	250	14.09		
171	7.74	1820	82.43	87.55 - 88.55		131	7.38	381	21.48		
155	7.02	1975	89.45	88.55 - 89.55		160	9.02	541	30.50		
85	3.85	2060	93.30	89.55 - 90.55		177	9.98	718	40.47		
67	3.03	2127	96.33	90.55 - 91.55		199	11.22	917	51.69		
42	1.90	2169	98.23	91.55 - 92.55		182	10.26	1099	61.95		
19	.86	2188	99.09	92.55 - 93.55		174	9.81	1273	71.76		
11	.50	2199	99.59	93.55 - 94.55		167	9.41	1440	81.17		
5	.23	2204	99.82	94.55 - 95.55		112	6.31	1552	87.49		
3	.14	2207	99.95	95.55 - 96.55		93	5.24	1645	92.73		
1	.05	2208	100.00	96.55 - 97.55		63	3.55	1708	96.28		
				97.55 - 98.55		35	1.97	1743	98.25		
				98.55 - 99.55		16	.90	1759	99.15		
				99.55 - 100.55		10	.56	1769	99.72		
				100.55 - 101.55		2	.11	1771	99.83		
				101.55 - 102.55		1	.06	1772	99.89		
				102.55 - 103.55		2	.11	1774	100.00		

## (94) SLEEVE LENGTH: SPINE-ELBOW

The horizontal surface distance between the midspine landmark and the olecranon-center landmark on the tip of the raised elbow is measured with a tape. The measurement is made while the subject holds his/her arms up in a horizontal position parallel to the standing surface and joins them by bringing the fists together at the metacarpophalangeal and proximal interphalangeal knuckles. The forearms and fists are in a straight line.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
47.94	18.87	1ST	52.88	20.82
48.64	19.15	2ND	53.63	21.11
49.07	19.32	3RD	54.10	21.30
49.65	19.55	5TH	54.74	21.55
50.53	19.89	10TH	55.71	21.93
51.13	20.13	15TH	56.36	22.19
51.60	20.32	20TH	56.88	22.39
52.01	20.48	25TH	57.32	22.57
52.38	20.62	30TH	57.72	22.72
52.73	20.76	35TH	58.08	22.87
53.06	20.89	40TH	58.43	23.00
53.38	21.02	45TH	58.77	23.14
53.70	21.14	50TH	59.10	23.27
54.02	21.27	55TH	59.43	23.40
54.34	21.39	60TH	59.77	23.53
54.68	21.53	65TH	60.13	23.67
55.04	21.67	70TH	60.50	23.82
55.42	21.82	75TH	60.91	23.98
55.85	21.99	80TH	61.37	24.16
56.34	22.18	85TH	61.90	24.37
56.95	22.42	90TH	62.59	24.64
57.83	22.77	95TH	63.63	25.05
58.36	22.98	97TH	64.33	25.33
58.74	23.12	98TH	64.85	25.53
59.28	23.34	99TH	65.69	25.86

# SLEEVE LENGTH: SPINE-ELBOW

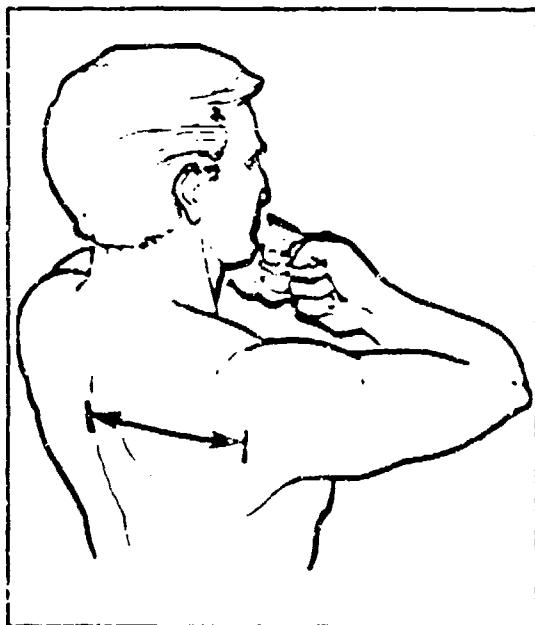
FEMALES			
CM		INCHES	
53.71	MEAN VALUE	21.14	
.05	SE(MEAN)	.02	
2.47	STD DEVIATION	.97	
.04	SE(STD DEV)	.00	
44.80	MINIMUM	17.64	
61.60	MAXIMUM	24.25	
SYMMETRY---VETA I = -.03			
KURTOSIS---VETA II = 2.91			
COEF. OF VARIATION = 4.6%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
59.12	MEAN VALUE	23.28	
.06	SE(MEAN)	.03	
2.70	STD DEVIATION	1.06	
.05	SE(STD DEV)	.02	
48.40	MINIMUM	19.06	
68.90	MAXIMUM	27.13	
SYMMETRY---VETA I = .05			
KURTOSIS---VETA II = 3.15			
COEF. OF VARIATION = 4.6%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	44.75 -	45.25	1	.06	1	.06		
2	.09	3	.14	45.25 -	45.75	0	.00	1	.06		
0	.00	3	.14	45.75 -	46.25	0	.00	1	.06		
5	.23	8	.36	46.25 -	46.75	1	.06	2	.11		
2	.09	10	.45	46.75 -	47.25	0	.00	2	.11		
7	.32	17	.77	47.25 -	47.75	0	.00	2	.11		
16	.72	33	1.49	47.75 -	48.25	0	.00	2	.11		
14	.63	47	2.13	48.25 -	48.75	2	.11	4	.23		
29	1.31	76	3.44	48.75 -	49.25	5	.28	9	.51		
39	1.77	115	5.21	49.25 -	49.75	5	.28	14	.79		
51	2.31	166	7.52	49.75 -	50.25	10	.56	24	1.35		
89	4.03	255	11.55	50.25 -	50.75	16	.90	40	2.25		
112	5.07	367	16.62	50.75 -	51.25	21	1.18	61	3.44		
120	5.43	487	22.06	51.25 -	51.75	34	1.92	95	5.36		
135	6.11	622	28.17	51.75 -	52.25	48	2.71	143	8.06		
157	7.11	779	35.28	52.25 -	52.75	38	2.14	181	10.20		
183	8.29	962	43.57	52.75 -	53.25	57	3.21	238	13.42		
147	6.66	1109	50.23	53.25 -	53.75	87	4.90	325	18.32		
187	8.47	1296	58.70	53.75 -	54.25	103	5.81	428	24.13		
155	7.02	1451	65.72	54.25 -	54.75	101	5.69	529	29.82		
152	6.88	1603	72.60	54.75 -	55.25	136	7.67	665	37.49		
143	6.48	1746	79.08	55.25 -	55.75	130	7.33	795	44.81		
104	4.71	1850	83.79	55.75 -	56.25	118	6.65	913	51.47		
106	4.80	1956	88.59	56.25 -	56.75	140	7.89	1053	59.36		
91	4.12	2047	92.71	56.75 -	57.25	141	7.95	1194	67.31		
48	2.17	2095	94.88	57.25 -	57.75	120	6.76	1314	74.07		
42	1.90	2137	96.78	57.75 -	58.25	101	5.69	1415	79.76		
26	1.18	2163	97.96	58.25 -	58.75	67	3.78	1482	83.54		
22	1.00	2185	98.96	58.75 -	59.25	73	4.11	1555	87.66		
12	.54	2197	99.50	59.25 -	59.75	63	3.55	1618	91.21		
6	.27	2203	99.77	59.75 -	60.25	42	2.37	1660	93.57		
0	.00	2203	99.77	60.25 -	60.75	31	1.75	1691	95.32		
1	.05	2204	99.82	60.75 -	61.25	23	1.30	1714	96.62		
4	.18	2208	100.00	61.25 -	61.75	21	1.18	1735	97.80		
				61.75 -	62.25	12	.68	1747	98.48		
				62.25 -	62.75	13	.73	1760	99.21		
				62.75 -	63.25	4	.23	1764	99.44		
				63.25 -	63.75	6	.34	1770	99.77		
				63.75 -	64.25	0	.00	1770	99.77		
				64.25 -	64.75	2	.11	1772	99.89		
				64.75 -	65.25	1	.06	1773	99.94		
				65.25 -	65.75	0	.00	1773	99.94		
				65.75 -	66.25	1	.06	1774	100.00		
				66.25 -	66.75						
				66.75 -	67.25						
				67.25 -	67.75						
				67.75 -	68.25						
				68.25 -	68.75						
				68.75 -	69.25						

## (95) SLEEVE LENGTH: SPINE-SCYE

The horizontal surface distance between the midspine landmark and the right posterior-diagonal-scye landmark at the back of the raised right arm near the armpit is measured with a tape. The measurement is made while the subject holds his/her arms up in a horizontal position parallel to the standing surface and joins them by bringing the fists together at the metacarpophalangeal and proximal interphalangeal knuckles. The forearms and fists are in a straight line.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
17.85	7.03	1ST	19.35	7.62
18.19	7.16	2ND	19.69	7.75
18.41	7.25	3RD	19.92	7.84
18.71	7.37	5TH	20.23	7.96
19.18	7.55	10TH	20.72	8.16
19.50	7.68	15TH	21.06	8.29
19.75	7.78	20TH	21.33	8.40
19.97	7.86	25TH	21.57	8.49
20.16	7.94	30TH	21.78	8.58
20.33	8.01	35TH	21.99	8.66
20.50	8.07	40TH	22.18	8.73
20.66	8.14	45TH	22.37	8.81
20.82	8.20	50TH	22.56	8.88
20.98	8.26	55TH	22.75	8.95
21.14	8.32	60TH	22.94	9.03
21.31	8.39	65TH	23.14	9.11
21.48	8.46	70TH	23.35	9.19
21.68	8 -	75TH	23.58	9.28
21.89	8.62	80TH	23.84	9.39
22.14	8.72	85TH	24.14	9.50
22.47	8.85	90TH	24.52	9.65
22.97	9.04	95TH	25.08	9.87
23.31	9.18	97TH	25.44	10.02
23.58	9.28	98TH	25.70	10.12
24.01	9.45	99TH	26.11	10.28

# SLEEVE LENGTH: SPINE-SCYE

FEMALES			
CM		INCHES	
20.83	MEAN VALUE	8.20	
.03	SE(MEAN)	.00	
1.29	STD DEVIATION	.51	
.02	SE(STD DEV)	.00	
16.70	MINIMUM	6.57	
25.20	MAXIMUM	9.92	
SYMMETRY---VETA I = .07			
KURTOSIS---VETA II = 3.08			
COEF. OF VARIATION = 6.2%			
NUMBER OF SUBJECTS = 2208			

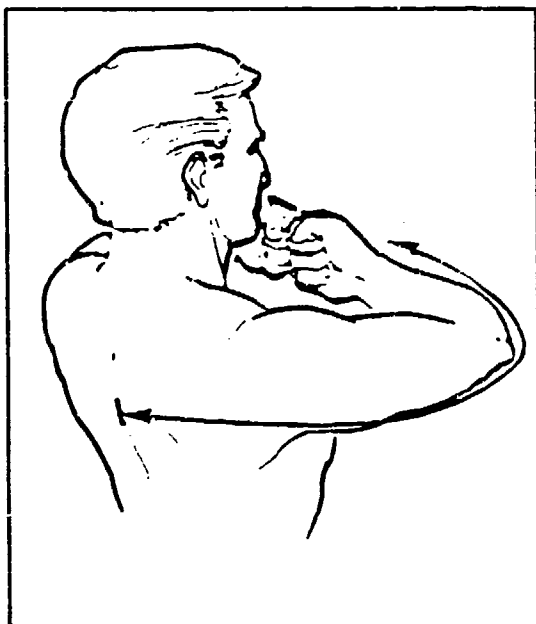
MALES			
CM		INCHES	
22.59	MEAN VALUE	8.89	
.04	SE(MEAN)	.00	
1.48	STD DEVIATION	.58	
.02	SE(STD DEV)	.00	
17.50	MINIMUM	6.89	
27.50	MAXIMUM	10.83	
SYMMETRY---VETA I = .07			
KURTOSIS---VETA II = 2.99			
COEF. OF VARIATION = 6.5%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	16.55 -	16.75	1	.06	1	.06		
2	.09	3	.14	16.75 -	16.95	0	.00	1	.06		
2	.09	5	.23	16.95 -	17.15	1	.06	2	.11		
3	.14	8	.36	17.15 -	17.35	2	.11	4	.23		
4	.18	12	.54	17.35 -	17.55	2	.11	6	.34		
3	.14	15	.68	17.55 -	17.75	2	.11	8	.45		
13	.59	28	1.27	17.75 -	17.95	0	.00	8	.45		
12	.54	40	1.81	17.95 -	18.15	2	.11	10	.56		
20	.91	60	2.72	18.15 -	18.35	1	.06	11	.62		
32	1.49	93	4.21	18.35 -	18.55	6	.34	17	.96		
21	.95	114	5.16	18.55 -	18.75	10	.56	27	1.52		
27	1.22	141	6.39	18.75 -	18.95	8	.45	35	1.97		
54	2.45	195	8.83	18.95 -	19.15	21	1.18	56	3.16		
79	3.58	274	12.41	19.15 -	19.35	24	1.35	80	4.51		
94	4.26	368	16.67	19.35 -	19.55	34	1.92	114	6.43		
72	3.26	440	19.93	19.55 -	19.75	39	2.20	153	8.62		
98	4.44	538	24.37	19.75 -	19.95	37	2.09	190	10.71		
106	4.80	644	29.17	19.95 -	20.15	41	2.31	231	13.02		
149	6.75	793	35.91	20.15 -	20.35	61	3.44	292	16.46		
138	6.25	931	42.16	20.35 -	20.55	59	3.33	351	19.79		
109	4.94	1040	47.10	20.55 -	20.75	85	4.79	436	24.58		
147	6.66	1187	53.76	20.75 -	20.95	75	4.23	511	28.80		
136	6.16	1323	59.92	20.95 -	21.15	89	5.02	600	33.82		
156	7.07	1479	66.98	21.15 -	21.35	91	5.13	691	38.95		
127	5.75	1606	72.74	21.35 -	21.55	104	5.86	795	44.81		
79	3.58	1685	76.31	21.55 -	21.75	107	6.03	902	50.85		
102	4.62	1787	80.93	21.75 -	21.95	62	3.49	964	54.34		
89	4.03	1876	84.96	21.95 -	22.15	81	4.57	1045	58.91		
77	3.49	1953	88.45	22.15 -	22.35	105	5.92	1150	64.83		
71	3.22	2024	91.67	22.35 -	22.55	100	5.64	1250	70.46		
33	1.49	2057	93.16	22.55 -	22.75	74	4.17	1324	74.63		
34	1.54	2091	94.70	22.75 -	22.95	65	3.66	1389	78.30		
29	1.31	2120	96.01	22.95 -	23.15	71	4.00	1460	82.30		
25	1.13	2145	97.15	23.15 -	23.35	53	2.99	1513	85.29		
19	.36	2164	98.01	23.35 -	23.55	64	3.61	1577	88.90		
9	.41	2173	98.41	23.55 -	23.75	37	2.09	1614	90.98		
9	.41	2182	98.82	23.75 -	23.95	24	1.35	1638	92.33		
11	.50	2193	99.32	23.95 -	24.15	31	1.75	1669	94.08		
6	.27	2199	99.59	24.15 -	24.35	23	1.30	1692	95.38		
4	.18	2203	99.77	24.35 -	24.55	23	1.30	1715	96.67		
0	.00	2206	99.91	24.55 -	24.75	12	.68	1727	97.35		
3	.14	2207	99.95	24.75 -	24.95	6	.34	1733	97.69		
1	.05	2208	100.00	24.95 -	25.15	19	1.07	1752	98.76		
1	.05			25.15 -	25.35	6	.34	1758	99.10		
				25.35 -	25.55	7	.39	1765	99.49		
				25.55 -	25.75	2	.11	1767	99.61		
				25.75 -	25.95	4	.23	1771	99.83		
				25.95 -	26.15	1	.06	1772	99.89		
				26.15 -	26.35	0	.00	1772	99.89		
				26.35 -	26.55	0	.00	1772	99.89		
				26.55 -	26.75	2	.11	1774	100.00		
				26.75 -	26.95						
				26.95 -	27.15						
				27.15 -	27.35						
				27.35 -	27.55						



## (96) SLEEVE LENGTH: SPINE-WRIST

The horizontal surface distance from the midspine landmark, across the olecranon-center landmark at the tip of the raised right elbow, to the dorsal wrist landmark is measured with a tape. The measurement is made while the subject holds his/her arms up in a horizontal position parallel to the standing surface and joins them by bringing the fists together at the metacarpophalangeal and proximal interphalangeal knuckles. The forearms and fists are in a straight line.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
72.41	28.51	1ST	80.12	31.54
73.40	28.90	2ND	81.06	31.91
74.01	29.14	3RD	81.66	32.15
74.82	29.46	5TH	82.49	32.47
76.07	29.95	10TH	83.78	32.98
76.91	30.28	15TH	84.67	33.33
77.58	30.54	20TH	85.38	33.61
78.17	30.77	25TH	86.00	33.86
78.70	30.98	30TH	86.56	34.08
79.20	31.18	35TH	87.08	34.28
79.67	31.37	40TH	87.58	34.48
80.14	31.55	45TH	88.06	34.67
80.60	31.73	50TH	88.54	34.86
81.07	31.92	55TH	89.03	35.05
81.55	32.11	60TH	89.52	35.24
82.04	32.30	65TH	90.03	35.44
82.57	32.51	70TH	90.56	35.65
83.14	32.73	75TH	91.15	35.88
83.78	32.98	80TH	91.80	36.14
84.51	33.27	85TH	92.56	36.44
85.42	33.63	90TH	93.52	36.82
86.71	34.14	95TH	94.93	37.37
87.49	34.45	97TH	95.84	37.73
88.03	34.66	98TH	96.50	37.99
88.79	34.95	99TH	97.51	38.39

# SLEEVE LENGTH: SPINE-WRIST

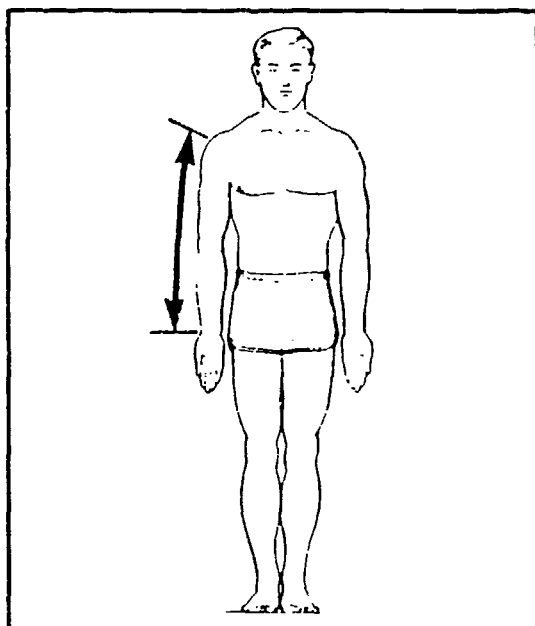
FEMALES			
<u>CM</u>		<u>INCHES</u>	
80.67	MEAN VALUE	31.76	
.08	SE (MEAN)	.03	
3.63	STD DEVIATION	1.43	
.05	SE (STD DEV)	.02	
67.10	MINIMUM	26.42	
94.80	MAXIMUM	37.32	
SYMMETRY---VETA I = .05			
KURTOSIS---VETA II = 3.11			
COEF. OF VARIATION = 4.5%			
NUMBER OF SUBJECTS = 2208			

MALES			
<u>CM</u>		<u>INCHES</u>	
88.60	MEAN VALUE	34.88	
.09	SE (MEAN)	.04	
3.79	STD DEVIATION	1.49	
.06	SE (STD DEV)	.03	
73.10	MINIMUM	28.78	
103.70	MAXIMUM	40.83	
SYMMETRY---VETA I = .03			
KURTOSIS---VETA II = 3.23			
COEF. OF VARIATION = 4.3%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
<u>F</u>	<u>FPct</u>	<u>CumF</u>	<u>CumFPct</u>	<u>CENTIMETERS</u>		<u>F</u>	<u>FPct</u>	<u>CumF</u>	<u>CumFPct</u>		
2	.09	2	.09	66.55	- 67.55						
1	.05	3	.14	67.55	- 68.55						
2	.09	5	.23	68.55	- 69.55						
2	.09	7	.32	69.55	- 70.55						
6	.27	13	.59	70.55	- 71.55						
10	.45	23	1.04	71.55	- 72.55						
28	1.27	51	2.31	72.55	- 73.55	2	.11	2	.11		
37	1.68	88	3.99	73.55	- 74.55	0	.00	2	.11		
73	3.31	161	7.29	74.55	- 75.55	0	.00	2	.11		
121	5.48	282	12.77	75.55	- 76.55	2	.11	4	.23		
157	7.11	439	19.88	76.55	- 77.55	1	.06	5	.28		
204	9.24	643	29.12	77.55	- 78.55	3	.17	8	.45		
214	9.69	857	38.81	78.55	- 79.55	5	.28	13	.73		
223	10.10	1080	48.91	79.55	- 80.55	10	.56	23	1.30		
247	11.19	1327	60.10	80.55	- 81.55	30	1.69	53	2.99		
223	10.10	1550	70.20	81.55	- 82.55	52	2.93	105	5.92		
186	8.42	1736	78.62	82.55	- 83.55	60	3.38	165	9.30		
164	7.43	1900	86.05	83.55	- 84.55	76	4.28	241	13.59		
103	4.66	2003	90.72	84.55	- 85.55	127	7.16	368	20.74		
82	3.71	2085	94.43	85.55	- 86.55	155	8.74	523	29.48		
61	2.76	2146	97.19	86.55	- 87.55	166	9.36	689	38.84		
34	1.54	2180	98.73	87.55	- 88.55	214	12.06	903	50.90		
13	.59	2193	99.32	88.55	- 89.55	180	10.15	1083	61.05		
6	.27	2199	99.59	89.55	- 90.55	171	9.64	1254	70.69		
4	.18	2203	99.77	90.55	- 91.55	127	7.16	1381	77.85		
2	.09	2205	99.86	91.55	- 92.55	131	7.38	1512	85.23		
1	.05	2206	99.91	92.55	- 93.55	91	5.13	1603	90.36		
1	.05	2207	99.95	93.55	- 94.55	64	3.61	1667	93.97		
1	.05	2208	100.00	94.55	- 95.55	42	2.37	1709	96.34		
				95.55	- 96.55	33	1.86	1742	98.20		
				96.55	- 97.55	18	1.01	1760	99.21		
				97.55	- 98.55	5	.28	1765	99.49		
				98.55	- 99.55	6	.34	1771	99.83		
				99.55	- 100.55	1	.06	1772	99.89		
				100.55	- 101.55	1	.06	1773	99.94		
				101.55	- 102.55	0	.00	1773	99.94		
				102.55	- 103.55	0	.00	1773	99.94		
				103.55	- 104.55	1	.06	1774	100.00		

## (97) SLEEVE OUTSEAM

The straight-line distance between the acromion landmark on the tip of the right shoulder and the stylium landmark on the right wrist is measured with a tape. The subject stands erect with both arms straight at the sides and the palms facing forward.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
47.91	18.86	1ST	53.24	20.96	
48.66	19.16	2ND	54.03	21.27	
49.15	19.35	3RD	54.52	21.47	
49.81	19.61	5TH	55.19	21.73	
50.85	20.02	10TH	56.24	22.14	
51.56	20.30	15TH	56.95	22.42	
52.13	20.52	20TH	57.52	22.64	
52.62	20.72	25TH	58.01	22.84	
53.07	20.89	30TH	58.46	23.02	
53.48	21.06	35TH	58.88	23.18	
53.88	21.21	40TH	59.28	23.34	
54.26	21.36	45TH	59.67	23.49	
54.64	21.51	50TH	60.07	23.65	
55.02	21.66	55TH	60.46	23.80	
55.41	21.82	60TH	60.86	23.96	
55.82	21.97	65TH	61.28	24.13	
56.24	22.14	70TH	61.72	24.30	
56.71	22.33	75TH	62.21	24.49	
57.24	22.53	80TH	62.75	24.71	
57.85	22.77	85TH	63.39	24.96	
58.63	23.08	90TH	64.20	25.27	
59.81	23.55	95TH	65.39	25.74	
60.58	23.85	97TH	66.16	26.05	
61.16	24.08	98TH	66.72	26.27	
62.09	24.44	99TH	67.58	26.61	

# SLEEVE OUTSEAM

## FEMALES

CM		INCHES
54.72	MEAN VALUE	21.54
.06	SE(MEAN)	.03
3.02	STD DEVIATION	1.19
.05	SE(STD DEV)	.02
42.10	MINIMUM	16.57
67.80	MAXIMUM	26.69

SYMMETRY---VETA I = .15  
 KURTOSIS---VETA II = 3.16  
 COEF. OF VARIATION = 5.5%  
 NUMBER OF SUBJECTS = 2208

## MALES

CM		INCHES
60.15	MEAN VALUE	23.68
.07	SE(MEAN)	.03
3.07	STD DEVIATION	1.21
.05	SE(STD DEV)	.02
48.10	MINIMUM	18.94
74.50	MAXIMUM	29.33

SYMMETRY---VETA I = .15  
 KURTOSIS---VETA II = 3.29  
 COEF. OF VARIATION = 5.1%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
1	.05	1	.05
0	.00	1	.05
0	.00	1	.05
0	.00	1	.05
1	.05	2	.09
14	.63	16	.72
22	1.00	38	1.72
48	2.17	86	3.89
81	3.67	167	7.56
172	7.79	339	15.35
184	8.33	523	23.69
267	12.09	790	35.78
310	14.04	1100	49.82
256	11.59	1356	61.41
270	12.23	1626	73.64
197	8.92	1823	82.56
151	6.84	1974	89.40
105	4.76	2079	94.16
66	2.99	2145	97.15
31	1.40	2176	98.55
17	.77	2193	99.32
7	.32	2200	99.64
4	.18	2204	99.82
3	.14	2207	99.95
0	.00	2207	99.95
0	.00	2207	99.95
1	.05	2208	100.00

### CENTIMETERS

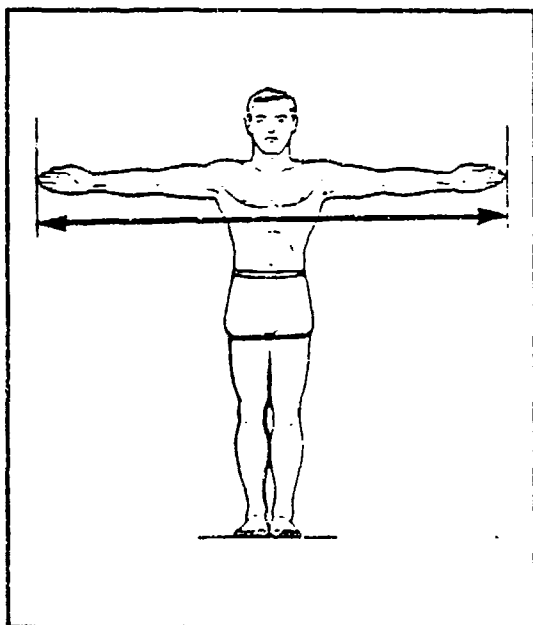
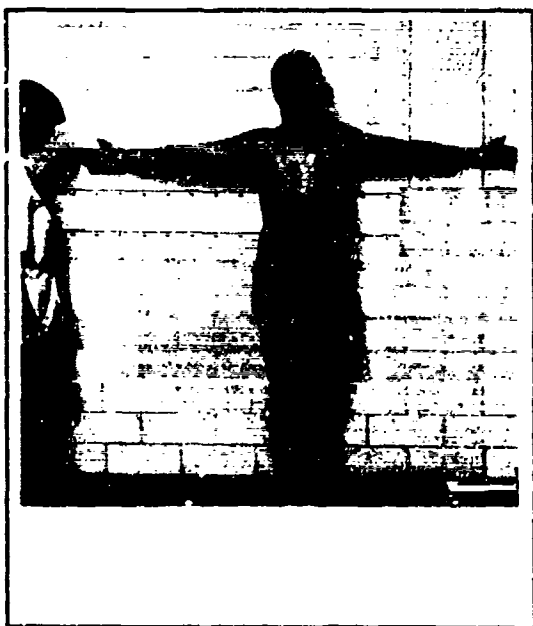
41.55 - 42.55
42.55 - 43.55
43.55 - 44.55
44.55 - 45.55
45.55 - 46.55
46.55 - 47.55
47.55 - 48.55
48.55 - 49.55
49.55 - 50.55
50.55 - 51.55
51.55 - 52.55
52.55 - 53.55
53.55 - 54.55
54.55 - 55.55
55.55 - 56.55
56.55 - 57.55
57.55 - 58.55
58.55 - 59.55
59.55 - 60.55
60.55 - 61.55
61.55 - 62.55
62.55 - 63.55
63.55 - 64.55
64.55 - 65.55
65.55 - 66.55
66.55 - 67.55
67.55 - 68.55
68.55 - 69.55
69.55 - 70.55
70.55 - 71.55
71.55 - 72.55
72.55 - 73.55
73.55 - 74.55

### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
0	.00	1	.06
1	.06	2	.11
1	.06	3	.17
5	.28	8	.45
14	.79	22	1.24
39	2.20	61	3.44
49	2.76	110	6.20
97	5.47	207	11.67
142	8.00	349	19.67
196	11.05	545	30.72
230	12.97	775	43.69
232	13.08	1007	56.76
200	11.27	1207	68.04
181	10.20	1388	78.24
153	8.62	1541	86.87
102	5.75	1643	92.62
54	3.04	1697	95.66
32	1.80	1729	97.46
32	1.80	1761	99.27
8	.45	1769	99.72
2	.11	1771	99.83
1	.06	1772	99.89
0	.00	1772	99.89
0	.00	1772	99.89
0	.00	1772	99.89
2	.11	1774	100.00

## (98) SPAN

The distance between the tips of the middle fingers of the horizontally outstretched arms is measured on a wall chart. The subject stands erect with the back against a wall-mounted scale and the heels together. Both arms and hands are stretched horizontally against a back wall with the tip of the middle finger of one hand just touching a side wall. A block is placed at the tip of the middle finger of the other hand to establish the measurement on the scale. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
148.81	58.59	1ST	164.79	64.88
151.02	59.46	2ND	166.53	65.56
152.38	59.99	3RD	167.68	66.02
154.21	60.71	5TH	169.31	66.66
157.00	61.81	10TH	171.94	67.69
158.88	62.55	15TH	173.78	68.42
160.37	63.14	20TH	175.28	69.01
161.67	63.65	25TH	176.60	69.53
162.85	64.11	30TH	177.80	70.00
163.94	64.54	35TH	178.92	70.44
164.98	64.95	40TH	179.99	70.86
166.00	65.36	45TH	181.04	71.28
167.02	65.76	50TH	182.09	71.69
168.04	66.16	55TH	183.14	72.10
169.09	66.57	60TH	184.21	72.52
170.18	67.00	65TH	185.32	72.96
171.33	67.45	70TH	186.50	73.42
172.60	67.95	75TH	187.77	73.93
174.02	68.51	80TH	189.21	74.49
175.67	69.16	85TH	190.86	75.14
177.76	69.99	90TH	192.96	75.97
180.86	71.20	95TH	196.03	77.18
182.84	71.98	97TH	197.99	77.95
184.27	72.55	98TH	199.42	78.51
186.45	73.41	99TH	201.62	79.38

## SPAN

## FEMALES

<u>CM</u>		<u>INCHES</u>
167.19	MEAN VALUE	65.82
.17	SE (MEAN)	.07
8.13	STD DEVIATION	3.20
.12	SE (STD DEV)	.05
135.60	MINIMUM	53.39
196.80	MAXIMUM	77.48

SYMMETRY----	VETA I	=	.09
KURTOSIS----	VETA II	=	3.09
COEF. OF VARIATION		=	4.9%
NUMBER OF SUBJECTS		=	2208

## MALES

<u>CM</u>		<u>INCHES</u>
182.31	MEAN VALUE	71.77
.19	SE (MEAN)	.08
8.19	STD DEVIATION	3.23
.14	SE (STD DEV)	.05
147.40	MINIMUM	58.03
215.90	MAXIMUM	85.00

SYMMETRY----	VETA I	=	.13
KURTOSIS----	VETA II	=	3.21
COEF. OF VARIATION		=	4.5%
NUMBER OF SUBJECTS		=	1774

## FREQUENCY TABLE

## FEMALES

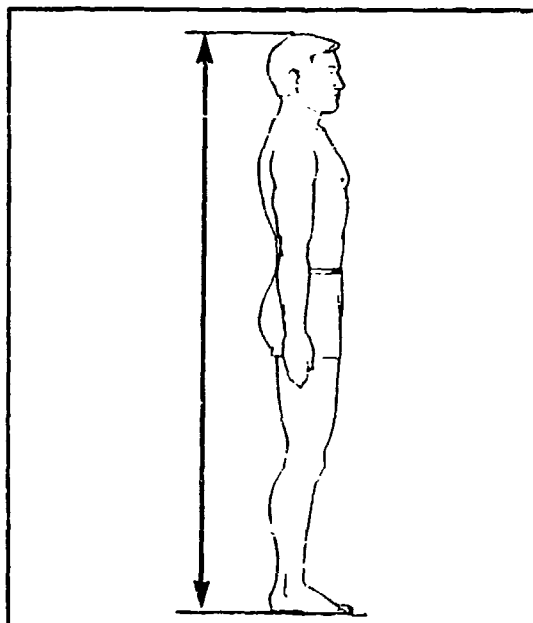
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>
1	.05	1	.05	135.25 - 136.75
0	.00	1	.05	136.75 - 138.25
0	.00	1	.05	138.25 - 139.75
1	.05	2	.09	139.75 - 141.25
2	.09	4	.18	141.25 - 142.75
4	.18	8	.36	142.75 - 144.25
0	.00	8	.36	144.25 - 145.75
5	.23	13	.59	145.75 - 147.25
11	.50	24	1.09	147.25 - 148.75
9	.41	33	1.49	148.75 - 150.25
12	.54	45	2.04	150.25 - 151.75
35	1.59	80	3.62	151.75 - 153.25
34	1.54	114	5.16	153.25 - 154.75
69	3.13	183	8.29	154.75 - 156.25
82	3.71	265	12.00	156.25 - 157.75
111	5.03	376	17.03	157.75 - 159.25
112	5.07	488	22.10	159.25 - 160.75
120	5.43	608	27.54	160.75 - 162.25
156	7.07	764	34.60	162.25 - 163.75
142	6.43	906	41.03	163.75 - 165.25
171	7.74	1077	48.78	165.25 - 166.75
159	7.20	1236	55.98	166.75 - 168.25
156	7.07	1392	63.04	168.25 - 169.75
140	6.34	1532	69.38	169.75 - 171.25
131	5.93	1663	75.32	171.25 - 172.75
127	5.75	1790	81.07	172.75 - 174.25
94	4.26	1884	85.33	174.25 - 175.75
82	3.71	1966	89.04	175.75 - 177.25
55	2.49	2021	91.53	177.25 - 178.75
63	2.85	2084	94.38	178.75 - 180.25
44	1.99	2128	96.38	180.25 - 181.75
26	1.18	2154	97.55	181.75 - 183.25
11	.50	2165	98.05	183.25 - 184.75
18	.82	2183	98.87	184.75 - 186.25
10	.45	2193	99.32	186.25 - 187.75
5	.23	2198	99.55	187.75 - 189.25
2	.09	2200	99.64	189.25 - 190.75
4	.18	2204	99.82	190.75 - 192.25
2	.09	2206	99.91	192.25 - 193.75
0	.00	2206	99.91	193.75 - 195.25
1	.05	2207	99.95	195.25 - 196.75
1	.05	2208	100.00	196.75 - 198.25
				198.25 - 199.75
				199.75 - 201.25
				201.25 - 202.75
				202.75 - 204.25
				204.25 - 205.75
				205.75 - 207.25
				207.25 - 208.75
				208.75 - 210.25
				210.25 - 211.75
				211.75 - 213.25
				213.25 - 214.75
				214.75 - 216.25

## MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
0	.00	1	.06
0	.00	1	.06
0	.00	1	.06
0	.00	1	.06
1	.06	2	.11
3	.17	5	.28
0	.00	5	.28
1	.06	6	.34
2	.11	8	.45
4	.23	12	.68
9	.51	21	1.18
19	1.07	40	2.25
29	1.63	69	3.89
36	2.03	105	5.92
40	2.25	145	8.17
59	3.33	204	11.50
80	4.51	284	16.01
85	4.79	369	20.80
122	6.88	491	27.68
106	5.98	597	33.65
139	7.84	736	41.49
131	7.38	867	48.87
121	6.82	988	55.69
130	7.33	1118	63.02
117	6.60	1235	69.62
106	5.98	1341	75.59
76	4.28	1417	79.88
75	4.23	1492	84.10
70	3.95	1562	88.05
53	2.99	1615	91.04
47	2.65	1662	93.69
40	2.25	1702	95.94
23	1.30	1725	97.24
19	1.07	1744	98.31
10	.56	1754	98.87
7	.39	1761	99.27
2	.11	1763	99.38
5	.28	1768	99.66
3	.17	1771	99.83
1	.06	1772	99.89
0	.00	1772	99.89
0	.00	1772	99.89
1	.06	1773	99.94
1	.06	1774	100.00

## (99) STATURE

The vertical distance from a standing surface to the top of the head is measured with an anthropometer. The subject stands erect with the head in the Frankfort plane. The heels are together with the weight distributed equally on both feet. The shoulders and upper extremities are relaxed. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
148.32	58.39	1ST	160.27	63.10
150.18	59.13	2ND	162.05	63.80
151.31	59.57	3RD	163.17	64.24
152.78	60.15	5TH	164.69	64.84
154.97	61.01	10TH	167.03	65.76
156.43	61.59	15TH	168.62	66.39
157.58	62.04	20TH	169.89	66.88
158.58	62.43	25TH	170.99	67.32
159.48	62.79	30TH	171.98	67.71
160.32	63.12	35TH	172.90	68.07
161.14	63.44	40TH	173.78	68.42
161.93	63.75	45TH	174.64	68.76
162.72	64.06	50TH	175.49	69.09
163.53	64.38	55TH	176.34	69.43
164.35	64.70	60TH	177.21	69.77
165.21	65.04	65TH	178.11	70.12
166.13	65.40	70TH	179.06	70.50
167.13	65.80	75TH	180.09	70.90
168.27	66.25	80TH	181.24	71.35
169.59	66.77	85TH	182.57	71.88
171.27	67.43	90TH	184.23	72.53
173.73	68.40	95TH	186.65	73.48
175.28	69.01	97TH	188.16	74.08
176.39	69.44	98TH	189.24	74.50
178.04	70.09	99TH	190.87	75.14

# STATURE

FEMALES			
<u>CM</u>		<u>INCHES</u>	
162.94	MEAN VALUE	64.15	
.14	SE (MEAN)	.05	
6.36	STD DEVIATION	2.50	
.10	SE (STD DEV)	.04	
142.80	MINIMUM	56.22	
187.00	MAXIMUM	73.62	
SYMMETRY---VETA I = .13			
KURTOSIS---VETA II = 3.01			
COEF. OF VARIATION = 3.9%			
NUMBER OF SUBJECTS = 2208			

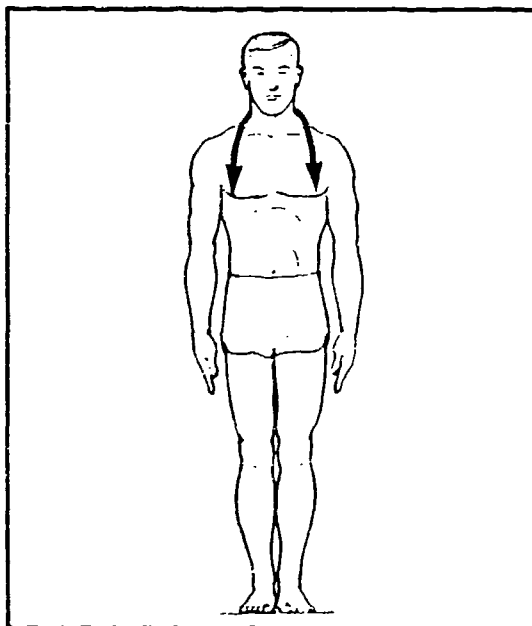
MALES			
<u>CM</u>		<u>INCHES</u>	
175.58	MEAN VALUE	69.13	
.16	SE (MEAN)	.06	
6.68	STD DEVIATION	2.63	
.11	SE (STD DEV)	.04	
149.70	MINIMUM	58.94	
204.20	MAXIMUM	80.39	
SYMMETRY---VETA I = .08			
KURTOSIS---VETA II = 3.09			
COEF. OF VARIATION = 3.8%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct	CumF	CumFPct		
1	.05	1	.05	142.75 -	144.25						
6	.27	7	.32	144.25 -	145.75						
4	.18	11	.50	145.75 -	147.25						
15	.68	26	1.18	147.25 -	148.75						
25	1.13	51	2.31	148.75 -	150.25	1	.06	1	.06		
24	1.09	75	3.40	150.25 -	151.75	0	.00	1	.06		
46	2.08	121	5.48	151.75 -	153.25	0	.00	1	.06		
74	3.35	195	8.83	153.25 -	154.75	0	.00	1	.06		
112	5.07	307	13.90	154.75 -	156.25	1	.06	2	.11		
148	6.70	455	20.61	156.25 -	157.75	4	.23	6	.34		
190	8.61	645	29.21	157.75 -	159.25	5	.28	11	.62		
209	9.47	854	38.68	159.25 -	160.75	6	.34	17	.96		
170	7.70	1024	46.38	160.75 -	162.25	20	1.13	37	2.09		
222	10.05	1246	56.43	162.25 -	163.75	24	1.35	61	3.44		
174	7.88	1420	64.31	163.75 -	165.25	40	2.25	101	5.69		
199	9.01	1619	73.32	165.25 -	166.75	57	3.21	158	8.91		
143	6.48	1762	79.80	166.75 -	168.25	73	4.11	231	13.02		
128	5.80	1890	85.60	168.25 -	169.75	96	5.41	327	18.43		
100	4.53	1990	90.13	169.75 -	171.25	149	8.40	476	26.83		
64	2.90	2054	93.03	171.25 -	172.75	142	8.00	618	34.84		
66	2.99	2120	96.01	172.75 -	174.25	143	8.06	761	42.90		
32	1.45	2152	97.46	174.25 -	175.75	150	8.46	911	51.35		
25	1.13	2177	98.60	175.75 -	177.25	164	9.24	1075	60.60		
17	.77	2194	99.37	177.25 -	178.75	139	7.84	1214	68.43		
4	.18	2198	99.55	178.75 -	180.25	128	7.22	1342	75.65		
4	.18	2202	99.73	180.25 -	181.75	105	5.92	1447	81.57		
3	.14	2205	99.86	181.75 -	183.25	90	5.07	1537	86.64		
2	.09	2207	99.95	183.25 -	184.75	86	4.85	1623	91.49		
0	.00	2207	99.95	184.75 -	186.25	52	2.93	1675	94.42		
1	.05	2208	100.00	186.25 -	187.75	42	2.37	1717	96.79		
				187.75 -	189.25	25	1.41	1742	98.20		
				189.25 -	190.75	13	.73	1755	98.93		
				190.75 -	192.25	7	.39	1762	99.32		
				192.25 -	193.75	5	.28	1767	99.61		
				193.75 -	195.25	3	.17	1770	99.77		
				195.25 -	196.75	2	.11	1772	99.89		
				196.75 -	198.25	0	.00	1772	99.89		
				198.25 -	199.75	0	.00	1772	99.89		
				199.75 -	201.25	1	.06	1773	99.94		
				201.25 -	202.75	0	.00	1773	99.94		
				202.75 -	204.25	1	.06	1774	100.00		



## (100) STRAP LENGTH

The surface distance from the right bustpoint landmark on women or the right nipple (thelion) on men across the back of the neck to the left bustpoint or nipple is measured with a tape passing over the left and right lateral neck landmarks. The subject stands erect with the head in the Frankfort plane. The shoulders and upper extremities are relaxed. The measurement is made at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
57.95	22.82	1ST	62.35	24.55
58.98	23.22	2ND	63.29	24.92
59.65	23.48	3RD	63.89	25.15
60.58	23.85	5TH	64.73	25.49
62.05	24.43	10TH	66.06	26.01
63.08	24.83	15TH	66.97	26.36
63.90	25.16	20TH	67.69	26.65
64.63	25.44	25TH	68.32	26.90
65.28	25.70	30TH	68.89	27.12
65.90	25.94	35TH	69.42	27.33
66.49	26.18	40TH	69.93	27.53
67.06	26.40	45TH	70.42	27.72
67.64	26.63	50TH	70.91	27.92
68.22	26.86	55TH	71.40	28.11
68.81	27.09	60TH	71.90	28.31
69.43	27.34	65TH	72.43	28.52
70.09	27.60	70TH	72.99	28.74
70.82	27.88	75TH	73.61	28.98
71.64	28.20	80TH	74.31	29.26
72.60	28.58	85TH	75.14	29.58
73.85	29.07	90TH	76.22	30.01
75.74	29.82	95TH	77.91	30.67
77.00	30.31	97TH	79.08	31.13
77.94	30.69	98TH	79.97	31.49
79.46	31.28	99TH	81.46	32.07

# STRAP LENGTH

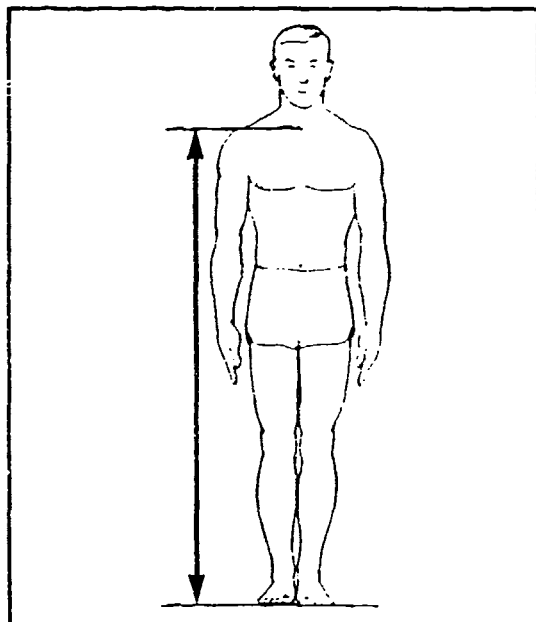
FEMALES			
CM		INCHES	
67.86	MEAN VALUE	26.72	
.10	SE(MEAN)	.04	
4.62	STD DEVIATION	1.82	
.07	SE(STD DEV)	.03	
54.50	MINIMUM	21.46	
86.70	MAXIMUM	34.13	
SYMMETRY---VETA I = .28			
KURTOSIS---VETA II = 3.17			
COEF. OF VARIATION = 6.8%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
71.07	MEAN VALUE	27.98	
.10	SE(MEAN)	.04	
4.01	STD DEVIATION	1.58	
.07	SE(STD DEV)	.03	
59.20	MINIMUM	23.31	
88.20	MAXIMUM	34.72	
SYMMETRY---VETA I = .30			
KURTOSIS---VETA II = 3.35			
COEF. OF VARIATION = 5.7%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
P	FPct	CumF	CumFPct	CENTIMETERS		P	FPct	CumF	CumFPct		
1	.05	1	.05	53.55 - 54.55							
4	.18	5	.23	54.55 - 55.55							
6	.27	11	.50	55.55 - 56.55							
6	.27	17	.77	56.55 - 57.55							
15	.68	32	1.45	57.55 - 58.55							
29	1.31	61	2.76	58.55 - 59.55		2	.11	2	.11		
43	1.95	104	4.71	59.55 - 60.55		1	.06	3	.17		
65	2.94	169	7.65	60.55 - 61.55		4	.23	7	.39		
91	4.12	260	11.78	61.55 - 62.55		14	.79	21	1.18		
133	6.02	393	17.80	62.55 - 63.55		17	.96	38	2.14		
154	6.97	547	24.77	63.55 - 64.55		37	2.09	75	4.23		
172	7.79	719	32.56	64.55 - 65.55		67	3.78	142	8.00		
185	8.38	904	40.94	65.55 - 66.55		76	4.28	218	12.29		
207	9.38	1111	50.32	66.55 - 67.55		120	6.76	338	19.05		
183	8.29	1294	58.61	67.55 - 68.55		149	8.40	487	27.45		
159	7.20	1453	65.81	68.55 - 69.55		170	9.58	657	37.03		
163	7.38	1616	73.19	69.55 - 70.55		164	9.24	821	46.28		
145	6.57	1761	79.76	70.55 - 71.55		206	11.61	1027	57.89		
97	4.39	1858	84.15	71.55 - 72.55		137	7.72	1164	65.61		
86	3.89	1944	88.04	72.55 - 73.55		139	7.84	1303	73.45		
78	3.53	2022	91.58	73.55 - 74.55		128	7.22	1431	80.67		
76	3.44	2098	95.02	74.55 - 75.55		110	6.20	1541	86.87		
37	1.68	2135	96.69	75.55 - 76.55		85	4.79	1626	91.66		
25	1.13	2160	97.83	76.55 - 77.55		48	2.71	1674	94.36		
17	.77	2177	98.60	77.55 - 78.55		42	2.37	1716	96.73		
9	.41	2186	99.00	78.55 - 79.55		18	1.01	1734	97.75		
6	.27	2192	99.28	79.55 - 80.55		14	.79	1748	98.53		
8	.36	2200	99.64	80.55 - 81.55		8	.45	1756	98.99		
2	.09	2202	99.73	81.55 - 82.55		10	.56	1766	99.55		
2	.09	2204	99.82	82.55 - 83.55		1	.06	1767	99.61		
2	.09	2206	99.91	83.55 - 84.55		1	.06	1768	99.66		
1	.05	2207	99.95	84.55 - 85.55		2	.11	1770	99.77		
0	.00	2207	99.95	85.55 - 86.55		2	.11	1772	99.89		
1	.05	2208	100.00	86.55 - 87.55		1	.06	1773	99.94		
				87.55 - 88.55		1	.06	1774	100.00		

## (101) SUPRASTERNALE HEIGHT

The vertical distance between a standing surface and the suprasternale landmark on the notch at the top of the breastbone is measured with an anthropometer. The subject stands erect looking straight ahead. The heels are together with the weight distributed equally on both feet. The shoulders and upper extremities are relaxed. The measurement is made at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
120.74	47.53	1ST	130.24	51.28
122.08	48.06	2ND	131.91	51.93
122.93	48.40	3RD	132.94	52.34
124.11	48.86	5TH	134.30	52.88
125.96	49.59	10TH	136.37	53.69
127.24	50.09	15TH	137.76	54.24
128.26	50.50	20TH	138.87	54.67
129.16	50.85	25TH	139.82	55.05
129.97	51.17	30TH	140.69	55.39
130.73	51.47	35TH	141.49	55.70
131.46	51.76	40TH	142.25	56.01
132.17	52.04	45TH	143.00	56.30
132.88	52.31	50TH	143.74	56.59
133.59	52.60	55TH	144.49	56.89
134.32	52.88	60TH	145.26	57.19
135.08	53.18	65TH	146.05	57.50
135.88	53.50	70TH	146.89	57.83
136.76	53.84	75TH	147.80	58.19
137.74	54.23	80TH	148.83	58.59
138.89	54.68	85TH	150.01	59.06
140.34	55.25	90TH	151.51	59.65
142.48	56.09	95TH	153.68	60.50
143.86	56.64	97TH	155.04	61.04
144.85	57.03	98TH	156.01	61.42
146.40	57.64	99TH	157.45	61.99

# SUPRASTERNALE HEIGHT

## FEMALES

CM		INCHES
133.03	MEAN VALUE	52.37
.12	SE(MEAN)	.05
5.60	STD DEVIATION	2.20
.08	SE(STD DEV)	.03
115.10	MINIMUM	45.31
153.80	MAXIMUM	60.55

SYMMETRY---VETA I	=	.14
KURTOSIS---VETA II	=	3.02
COEF. OF VARIATION	=	4.2%
NUMBER OF SUBJECTS	=	2208

## MALES

CM		INCHES
143.84	MEAN VALUE	56.63
.14	SE(MEAN)	.06
5.93	STD DEVIATION	2.33
.10	SE(STD DEV)	.04
118.80	MINIMUM	46.77
168.60	MAXIMUM	66.38

SYMMETRY---VETA I	=	.08
KURTOSIS---VETA II	=	3.22
COEF. OF VARIATION	=	4.1%
NUMBER OF SUBJECTS	=	1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
1	.05	1	.05
0	.00	1	.05
5	.23	6	.27
6	.27	12	.54
4	.18	16	.72
4	.18	20	.91
20	.91	40	1.81
15	.68	55	2.49
30	1.36	85	3.85
49	2.22	134	6.07
44	1.99	178	8.06
77	3.49	255	11.55
104	4.71	359	16.26
117	5.30	476	21.56
141	6.39	617	27.94
146	6.61	763	34.56
155	7.02	918	41.58
144	6.52	1062	48.10
145	6.57	1207	54.66
146	6.61	1353	61.28
143	6.48	1496	67.75
145	6.57	1641	74.32
96	4.35	1737	78.67
108	4.89	1845	83.56
86	3.89	1931	87.45
66	2.99	1997	90.44
55	2.49	2052	92.93
46	2.08	2098	95.02
40	1.81	2138	96.83
24	1.09	2162	97.92
13	.59	2175	98.51
12	.54	2187	99.05
11	.50	2198	99.55
1	.05	2199	99.59
1	.05	2200	99.64
5	.23	2205	99.86
0	.00	2205	99.86
0	.00	2205	99.86
1	.05	2206	99.91
2	.09	2208	100.00

### CENTIMETERS

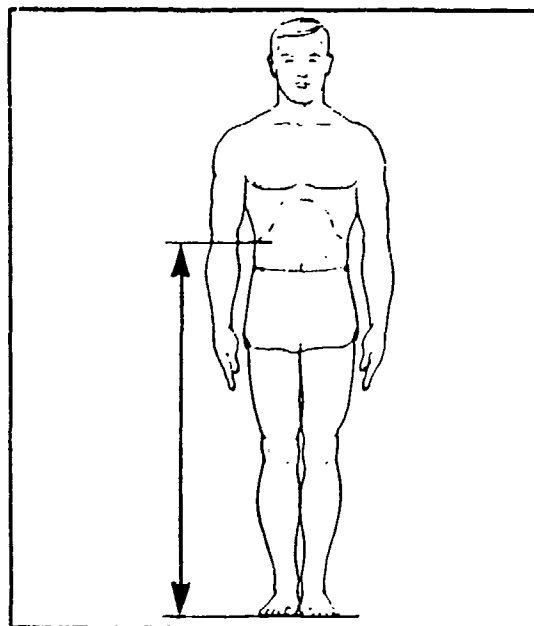
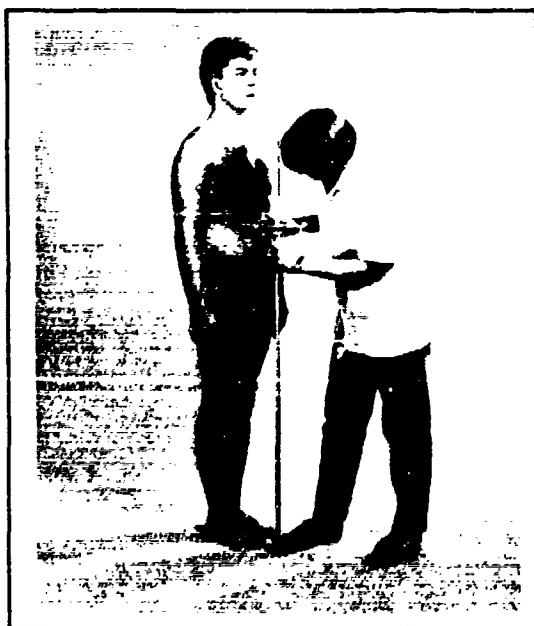
114.55 - 115.55
115.55 - 116.55
116.55 - 117.55
117.55 - 118.55
118.55 - 119.55
119.55 - 120.55
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164.55 - 165.55
165.55 - 166.55
166.55 - 167.55
167.55 - 168.55
168.55 - 169.55

### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
0	.00	1	.06
0	.00	1	.06
0	.00	1	.06
0	.00	1	.06
0	.00	1	.06
2	.11	3	.17
4	.23	7	.39
1	.06	8	.45
2	.11	10	.56
9	.51	19	1.07
13	.73	32	1.80
18	1.01	50	2.82
16	.90	66	3.72
28	1.58	94	5.30
44	2.48	138	7.78
42	2.37	180	10.15
64	3.61	244	13.75
78	4.40	322	18.15
96	5.41	418	23.56
108	6.09	526	29.65
106	5.98	632	35.63
119	6.71	751	42.33
133	7.50	884	49.83
118	6.65	1002	56.48
92	5.19	1094	61.67
111	6.26	1205	67.93
98	5.52	1303	73.45
94	5.30	1397	78.75
75	4.23	1472	82.98
61	3.44	1533	86.41
63	3.55	1596	89.97
52	2.93	1648	92.90
37	2.09	1685	94.98
24	1.35	1709	96.34
23	1.30	1732	97.63
18	1.01	1750	98.65
6	.34	1756	98.99
8	.45	1764	99.44
1	.06	1765	99.49
2	.11	1767	99.61
2	.11	1769	99.72
2	.11	1771	99.83
1	.06	1772	99.89
0	.00	1772	99.89
0	.00	1772	99.89
0	.00	1772	99.89
0	.00	1772	99.89
1	.06	1773	99.94
1	.06	1774	100.00

## (102) TENTH RIB HEIGHT

The vertical distance between a standing surface and the tenth rib landmark at the bottom of the right side of the rib cage is measured with an anthropometer. The subject stands erect looking straight ahead. The heels are together with the weight distributed equally on both feet. The shoulders and upper extremities are relaxed. The measurement is made at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
93.23	36.71	1ST	100.52	39.57
94.69	37.28	2ND	101.89	40.11
95.56	37.62	3RD	102.75	40.45
96.70	38.07	5TH	103.90	40.91
98.38	38.73	10TH	105.67	41.60
99.49	39.17	15TH	106.86	42.07
100.37	39.52	20TH	107.81	42.44
101.13	39.81	25TH	108.63	42.77
101.81	40.08	30TH	109.37	43.06
102.45	40.34	35TH	110.06	43.33
103.07	40.58	40TH	110.72	43.59
103.66	40.81	45TH	111.36	43.84
104.26	41.05	50TH	112.00	44.10
104.87	41.29	55TH	112.65	44.35
105.50	41.53	60TH	113.30	44.61
106.15	41.79	65TH	113.99	44.88
106.85	42.07	70TH	114.71	45.16
107.62	42.37	75TH	115.50	45.47
108.49	42.71	80TH	116.39	45.82
109.51	43.11	85TH	117.42	46.23
110.82	43.63	90TH	118.73	46.74
112.77	44.40	95TH	120.66	47.50
114.04	44.90	97TH	121.91	47.99
114.96	45.26	98TH	122.81	48.35
116.37	45.82	99TH	124.20	48.90

# TENTH RIB HEIGHT

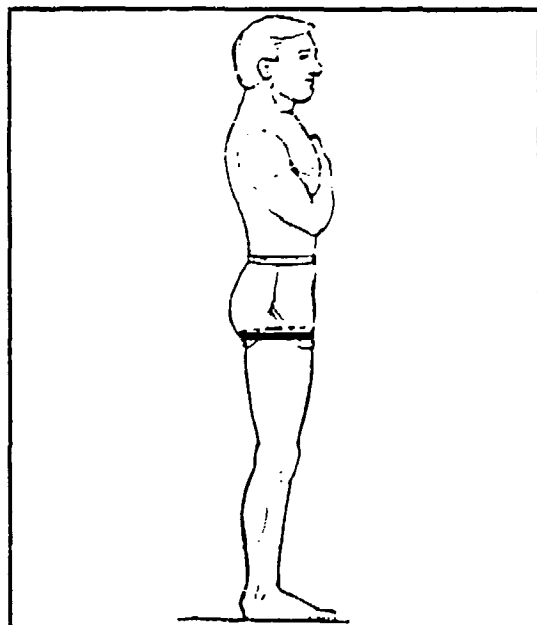
FEMALES			
CM		INCHES	
104.44	MEAN VALUE	41.12	
.10	SE(MEAN)	.04	
4.87	STD DEVIATION	1.92	
.07	SE(STD DEV)	.03	
87.60	MINIMUM	34.49	
124.30	MAXIMUM	48.94	
SYMMETRY---VETA I = .16			
KURTOSIS---VETA II = 3.14			
COEF. OF VARIATION = 4.7%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
112.12	MEAN VALUE	44.14	
.12	SE(MEAN)	.05	
5.13	STD DEVIATION	2.02	
.09	SE(STD DEV)	.03	
90.50	MINIMUM	35.63	
135.30	MAXIMUM	53.27	
SYMMETRY---VETA I = .11			
KURTOSIS---VETA II = 3.31			
COEF. OF VARIATION = 4.6%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
2	.09	2	.09	87.55 -	88.55						
0	.00	2	.09	88.55 -	89.55						
2	.09	4	.18	89.55 -	90.55	1	.06	1	.06		
2	.09	6	.27	90.55 -	91.55	0	.00	1	.06		
6	.27	12	.54	91.55 -	92.55	0	.00	1	.06		
13	.59	25	1.13	92.55 -	93.55	0	.00	1	.06		
12	.54	37	1.68	93.55 -	94.55	0	.00	1	.06		
75	1.13	62	2.81	94.55 -	95.55	0	.00	1	.06		
38	1.72	100	4.53	95.55 -	96.55	1	.06	2	.11		
48	2.17	148	6.70	96.55 -	97.55	1	.06	3	.17		
69	4.03	237	10.73	97.55 -	98.55	3	.17	6	.34		
96	4.35	333	15.08	98.55 -	99.55	6	.34	12	.68		
155	7.02	488	22.10	99.55 -	100.55	6	.34	18	1.01		
128	5.80	616	27.90	100.55 -	101.55	10	.56	28	1.58		
191	8.65	807	36.55	101.55 -	102.55	21	1.18	49	2.76		
167	7.56	974	44.11	102.55 -	103.55	23	1.30	72	4.06		
176	7.97	1150	52.08	103.55 -	104.55	44	2.48	116	6.54		
169	7.65	1319	59.74	104.55 -	105.55	53	2.99	169	9.53		
166	7.52	1485	67.26	105.55 -	106.55	81	4.57	250	14.09		
161	7.25	1645	74.50	106.55 -	107.55	67	3.78	317	17.87		
133	6.02	1778	80.53	107.55 -	108.55	121	6.82	438	24.69		
120	5.43	1898	85.96	108.55 -	109.55	104	5.86	542	30.55		
82	3.72	1980	89.67	109.55 -	110.55	151	8.51	693	39.06		
51	2.31	2031	91.98	110.55 -	111.55	149	8.40	842	47.46		
61	2.76	2092	94.75	111.55 -	112.55	135	7.61	977	55.07		
35	1.59	2127	96.33	112.55 -	113.55	125	7.05	1102	62.12		
27	1.22	2154	97.55	113.55 -	114.55	107	6.03	1209	68.15		
17	.77	2171	98.32	114.55 -	115.55	117	6.60	1326	74.75		
19	.86	2190	99.18	115.55 -	116.55	103	5.81	1429	80.55		
6	.27	2196	99.46	116.55 -	117.55	88	4.96	1517	85.51		
4	.18	2200	99.64	117.55 -	118.55	68	3.83	1585	89.35		
3	.14	2203	99.77	118.55 -	119.55	55	3.10	1640	92.45		
3	.14	2206	99.91	119.55 -	120.55	45	2.54	1685	94.98		
1	.05	2207	99.95	120.55 -	121.55	30	1.69	1715	96.67		
0	.00	2207	99.95	121.55 -	122.55	23	1.30	1738	97.97		
0	.00	2207	99.95	122.55 -	123.55	14	.79	1752	98.76		
1	.05	2208	100.00	123.55 -	124.55	6	.34	1758	99.10		
				124.55 -	125.55	8	.45	1766	99.55		
				125.55 -	126.55	4	.23	1770	99.77		
				126.55 -	127.55	0	.00	1770	99.77		
				127.55 -	128.55	0	.00	1770	99.77		
				128.55 -	129.55	2	.11	1772	99.89		
				129.55 -	130.55	0	.00	1772	99.89		
				130.55 -	131.55	0	.00	1772	99.89		
				131.55 -	132.55	0	.00	1772	99.89		
				132.55 -	133.55	0	.00	1772	99.89		
				133.55 -	134.55	1	.06	1773	99.94		
				134.55 -	135.55	1	.06	1774	100.00		

## (103) THIGH CIRCUMFERENCE

The circumference of the right thigh at its juncture with the buttock is measured with a tape. The measurement is made perpendicular to the long axis of the thigh. The subject stands erect with the weight distributed equally on both feet. The legs are spread apart just enough so that the thighs do not touch.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
48.05	18.92	1ST	48.72	19.18	
49.16	19.35	2ND	49.85	19.62	
49.87	19.63	3RD	50.60	19.92	
50.83	20.01	5TH	51.65	20.33	
52.34	20.61	10TH	53.33	21.00	
53.37	21.01	15TH	54.49	21.45	
54.19	21.33	20TH	55.43	21.82	
54.91	21.62	25TH	56.25	22.15	
55.55	21.87	30TH	56.98	22.43	
56.16	22.11	35TH	57.67	22.70	
56.73	22.34	40TH	58.32	22.96	
57.29	22.56	45TH	58.95	23.21	
57.85	22.78	50TH	59.58	23.46	
58.42	23.00	55TH	60.21	23.70	
59.00	23.23	60TH	60.85	23.96	
59.60	23.46	65TH	61.51	24.22	
60.24	23.72	70TH	62.21	24.49	
60.94	23.99	75TH	62.96	24.79	
61.74	24.31	80TH	63.81	25.12	
62.68	24.68	85TH	64.79	25.51	
63.89	25.15	90TH	66.04	26.00	
65.74	25.88	95TH	67.90	26.73	
66.98	26.37	97TH	69.12	27.21	
67.91	26.74	98TH	70.03	27.57	
69.42	27.33	99TH	71.46	28.13	

# THIGH CIRCUMFERENCE

FEMALES			
CM		INCHES	
58.03	MEAN VALUE	22.85	
.10	SE(MEAN)	.04	
4.50	STD DEVIATION	1.77	
.07	SE(STD DEV)	.03	
45.40	MINIMUM	17.87	
74.80	MAXIMUM	29.45	
SYMMETRY---VETA I = .24			
KURTOSIS---VETA II = 3.09			
COEF. OF VARIATION = 7.8%			
NUMBER OF SUBJECTS = 2208			

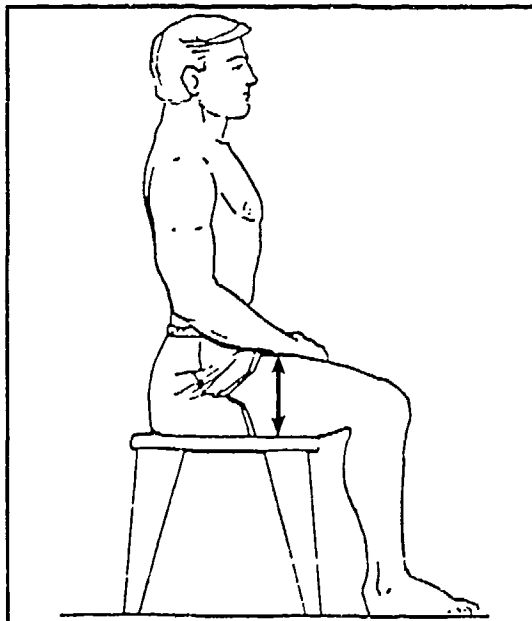
MALES			
CM		INCHES	
59.65	MEAN VALUE	23.48	
.12	SE(MEAN)	.05	
4.93	STD DEVIATION	1.94	
.08	SE(STD DEV)	.03	
45.80	MINIMUM	18.03	
78.70	MAXIMUM	30.98	
SYMMETRY---VETA I = .13			
KURTOSIS---VETA II = 2.95			
COEF. OF VARIATION = 8.3%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE									
FEMALES					MALES				
F	FPct	CumF	CumFPct	CENTIMETERS	F	FPct	CumF	CumFPct	
1	.05	1	.05	44.55 - 45.55					
4	.18	5	.23	45.55 - 46.55	3	.17	3	.17	
3	.14	8	.36	46.55 - 47.55	3	.17	6	.34	
22	1.00	30	1.36	47.55 - 48.55	9	.51	15	.85	
28	1.27	58	2.63	48.55 - 49.55	16	.90	31	1.75	
39	1.77	97	4.39	49.55 - 50.55	14	.79	45	2.54	
50	2.26	147	6.66	50.55 - 51.55	35	1.97	80	4.51	
76	3.44	223	10.10	51.55 - 52.55	56	3.16	136	7.67	
120	5.43	343	15.53	52.55 - 53.55	67	3.78	203	11.44	
137	6.20	480	21.74	53.55 - 54.55	77	4.34	280	15.78	
176	7.97	656	29.71	54.55 - 55.55	84	4.74	364	20.52	
202	9.15	858	38.86	55.55 - 56.55	111	6.26	475	26.78	
196	8.88	1054	47.74	56.55 - 57.55	134	7.55	609	34.33	
178	8.06	1232	55.80	57.55 - 58.55	120	6.76	729	41.09	
194	8.79	1426	64.58	58.55 - 59.55	148	8.34	877	49.44	
187	8.47	1613	73.05	59.55 - 60.55	144	8.12	1021	57.55	
139	6.30	1752	79.35	60.55 - 61.55	140	7.89	1161	65.45	
113	5.12	1865	84.47	61.55 - 62.55	124	6.99	1285	72.44	
96	4.35	1961	88.81	62.55 - 63.55	120	6.76	1405	79.20	
64	2.90	2025	91.71	63.55 - 64.55	86	4.85	1491	84.05	
60	2.72	2085	94.43	64.55 - 65.55	69	3.89	1560	87.94	
37	1.68	2122	96.11	65.55 - 66.55	70	3.95	1630	91.88	
36	1.63	2158	97.74	66.55 - 67.55	45	2.54	1675	94.42	
15	.68	2173	98.41	67.55 - 68.55	28	1.58	1703	96.00	
17	.77	2190	99.15	68.55 - 69.55	31	1.75	1734	97.75	
7	.32	2197	99.50	69.55 - 70.55	12	.68	1746	98.42	
5	.23	2202	99.73	70.55 - 71.55	11	.62	1757	99.04	
2	.09	2204	99.82	71.55 - 72.55	7	.39	1764	99.44	
1	.05	2205	99.86	72.55 - 73.55	4	.23	1768	99.66	
2	.09	2207	99.95	73.55 - 74.55	1	.06	1769	99.72	
1	.05	2208	100.00	74.55 - 75.55	2	.11	1771	99.83	
				75.55 - 76.55	2	.11	1773	99.94	
				76.55 - 77.55	0	.00	1773	99.94	
				77.55 - 78.55	0	.00	1773	99.94	
				78.55 - 79.55	1	.06	1774	100.00	



## (104) THIGH CLEARANCE

The vertical distance between a sitting surface and the highest point on the top of the right thigh is measured with an anthropometer. The subject sits with the thighs parallel, knees flexed 90 degrees, and the feet in line with the thighs.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
13.38	5.27	1ST	14.09	5.55	
13.64	5.37	2ND	14.40	5.67	
13.81	5.44	3RD	14.59	5.75	
14.04	5.53	5TH	14.86	5.85	
14.40	5.67	10TH	15.27	6.01	
14.65	5.77	15TH	15.54	6.12	
14.86	5.85	20TH	15.76	6.21	
15.04	5.92	25TH	15.96	6.28	
15.21	5.99	30TH	16.13	6.35	
15.36	6.05	35TH	16.30	6.42	
15.51	6.11	40TH	16.45	6.48	
15.66	6.17	45TH	16.61	6.54	
15.82	6.23	50TH	16.76	6.60	
15.97	6.29	55TH	16.91	6.66	
16.13	6.35	60TH	17.07	6.72	
16.29	6.41	65TH	17.24	6.79	
16.47	6.48	70TH	17.42	6.86	
16.67	6.56	75TH	17.62	6.94	
16.89	6.65	80TH	17.84	7.03	
17.16	6.75	85TH	18.11	7.13	
17.50	6.89	90TH	18.46	7.27	
18.02	7.09	95TH	18.99	7.48	
18.36	7.23	97TH	19.35	7.62	
18.61	7.33	98TH	19.63	7.73	
19.01	7.48	99TH	20.07	7.90	

# THIGH CLEARANCE

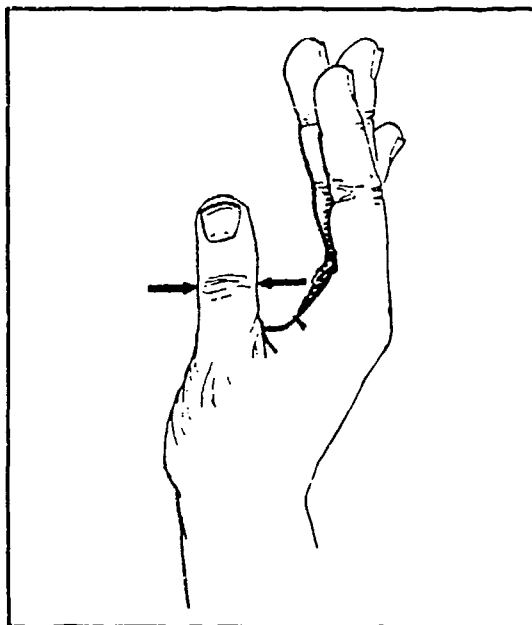
FEMALES			
<u>CM</u>		<u>INCHES</u>	
15.89	MEAN VALUE	6.26	
.03	SE(MEAN)	.00	
1.21	STD DEVIATION	.48	
.02	SE(STD DEV)	.00	
12.10	MINIMUM	4.76	
20.60	MAXIMUM	8.11	
SYMMETRY---VETA I		=	.35
KURTOSIS---VETA II		=	3.17
COEF. OF VARIATION		=	7.6%
NUMBER OF SUBJECTS		=	2208

MALES			
<u>CM</u>		<u>INCHES</u>	
16.82	MEAN VALUE	6.62	
.03	SE(MEAN)	.00	
1.26	STD DEVIATION	.49	
.02	SE(STD DEV)	.00	
12.90	MINIMUM	5.08	
22.00	MAXIMUM	8.66	
SYMMETRY---VETA I		=	.30
KURTOSIS---VETA II		=	3.27
COEF. OF VARIATION		=	7.5%
NUMBER OF SUBJECTS		=	1774

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct	CumF	CumFPct		
1	.05	1	.05	11.95 -	12.15						
0	.00	1	.05	12.15 -	12.35						
0	.00	1	.05	12.35 -	12.55						
1	.05	2	.09	12.55 -	12.75						
5	.23	7	.32	12.75 -	12.95	1	.06	1	.06		
6	.27	13	.59	12.95 -	13.15	0	.00	1	.06		
5	.23	18	.82	13.15 -	13.35	1	.06	2	.11		
17	.77	35	1.59	13.35 -	13.55	2	.11	4	.23		
23	1.04	58	2.63	13.55 -	13.75	3	.17	7	.39		
34	1.54	92	4.17	13.75 -	13.95	2	.11	9	.51		
42	1.90	134	6.07	13.95 -	14.15	10	.56	19	1.07		
67	3.03	201	9.10	14.15 -	14.35	19	1.07	38	2.14		
90	4.08	291	13.18	14.35 -	14.55	9	.51	47	2.65		
74	3.35	365	16.53	14.55 -	14.75	22	1.24	69	3.89		
119	5.39	484	21.92	14.75 -	14.95	33	1.86	102	5.75		
143	6.48	627	28.40	14.95 -	15.15	39	2.20	141	7.95		
140	6.34	767	34.74	15.15 -	15.35	66	3.72	207	11.67		
146	6.61	913	41.35	15.35 -	15.55	58	3.27	265	14.94		
153	6.93	1066	48.28	15.55 -	15.75	83	4.68	348	19.62		
130	5.89	1196	54.17	15.75 -	15.95	91	5.13	439	24.75		
138	6.25	1334	60.42	15.95 -	16.15	102	5.75	541	30.50		
135	6.11	1469	66.53	16.15 -	16.35	114	6.43	655	36.92		
126	5.71	1595	72.24	16.35 -	16.55	103	5.81	758	42.73		
105	4.76	1700	76.99	16.55 -	16.75	115	6.48	873	49.21		
94	4.26	1794	81.25	16.75 -	16.95	115	6.48	988	55.69		
88	3.99	1882	85.24	16.95 -	17.15	126	7.10	1114	62.80		
66	2.99	1948	88.22	17.15 -	17.35	95	5.36	1209	68.15		
59	2.67	2007	90.90	17.35 -	17.55	102	5.75	1311	73.90		
48	2.17	2055	93.07	17.55 -	17.75	83	4.68	1394	78.58		
33	1.49	2088	94.57	17.75 -	17.95	67	3.78	1461	82.36		
24	1.09	2112	95.65	17.95 -	18.15	64	3.61	1525	85.96		
28	1.27	2140	96.92	18.15 -	18.35	49	2.76	1574	88.73		
17	.77	2157	97.69	18.35 -	18.55	42	2.37	1616	91.09		
20	.91	2177	98.60	18.55 -	18.75	31	1.75	1647	92.84		
7	.32	2184	98.91	18.75 -	18.95	25	1.41	1672	94.25		
9	.41	2193	99.32	18.95 -	19.15	34	1.92	1706	96.17		
3	.14	2196	99.46	19.15 -	19.35	15	.85	1721	97.01		
5	.23	2201	99.68	19.35 -	19.55	13	.73	1734	97.75		
2	.09	2203	99.77	19.55 -	19.75	9	.51	1743	98.25		
0	.00	2203	99.77	19.75 -	19.95	10	.56	1753	98.82		
2	.09	2205	99.86	19.95 -	20.15	7	.39	1760	99.21		
1	.05	2206	99.91	20.15 -	20.35	4	.23	1764	99.44		
0	.00	2206	99.91	20.35 -	20.55	2	.11	1766	99.55		
2	.09	2208	100.00	20.55 -	20.75	4	.23	1770	99.77		
				20.75 -	20.95	0	.00	1770	99.77		
				20.95 -	21.15	0	.00	1770	99.77		
				21.15 -	21.35	2	.11	1772	99.89		
				21.35 -	21.55	1	.06	1773	99.94		
				21.55 -	21.75	0	.00	1773	99.94		
				21.75 -	21.95	0	.00	1773	99.94		
				21.95 -	22.15	1	.06	1774	100.00		

# (105) THUMB BREADTH

The maximum breadth of the right thumb perpendicular to its long axis is measured with a Holtain caliper. The thumb is straight and held away from the hand at about a 45-degree angle.



## THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
1.78	.70	1ST	2.09	.82	
1.81	.71	2ND	2.13	.84	
1.84	.72	3RD	2.16	.85	
1.86	.73	5TH	2.19	.86	
1.91	.75	10TH	2.24	.88	
1.93	.76	15TH	2.27	.90	
1.96	.77	20TH	2.30	.91	
1.97	.78	25TH	2.32	.91	
1.99	.78	30TH	2.34	.92	
2.01	.79	35TH	2.36	.93	
2.03	.80	40TH	2.38	.94	
2.04	.80	45TH	2.39	.94	
2.06	.81	50TH	2.41	.95	
2.08	.82	55TH	2.43	.96	
2.09	.82	60TH	2.45	.96	
2.11	.83	65TH	2.46	.97	
2.13	.84	70TH	2.48	.98	
2.15	.85	75TH	2.51	.99	
2.18	.86	80TH	2.53	1.00	
2.20	.87	85TH	2.56	1.01	
2.24	.88	90TH	2.60	1.02	
2.29	.90	95TH	2.65	1.04	
2.31	.91	97TH	2.68	1.06	
2.33	.92	98TH	2.71	1.07	
2.35	.93	99TH	2.74	1.08	

# THUMB BREADTH

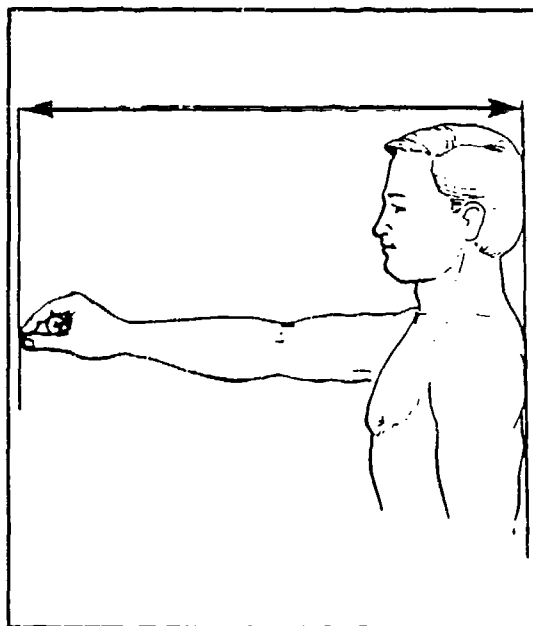
FEMALES			
CM		INCHES	
2.07	MEAN VALUE	.81	
.00	SE (MEAN)	.00	
.13	STD DEVIATION	.05	
.00	SE (STD DEV)	.00	
1.70	MINIMUM	.67	
2.50	MAXIMUM	.98	
SYMMETRY---VETA I = .19			
KURTOSIS---VETA II = 2.88			
COEF. OF VARIATION = 6.1%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
2.41	MEAN VALUE	.95	
.00	SE (MEAN)	.00	
.14	STD DEVIATION	.05	
.00	SE (STD DEV)	.00	
1.90	MINIMUM	.75	
2.90	MAXIMUM	1.14	
SYMMETRY---VETA I = .08			
KURTOSIS---VETA II = 3.11			
COEF. OF VARIATION = 5.6%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE									
FEMALES					MALES				
F	FPct	CumF	CumFPct	CENTIMETERS	F	FPct	CumF	CumFPct	
2	.09	2	.09	1.65 - 1.75					
70	3.17	72	3.26	1.75 - 1.85					
306	13.86	378	17.12	1.85 - 1.95					
663	30.03	1041	47.15	1.95 - 2.05	2	.11	2	.11	
625	28.31	1666	75.45	2.05 - 2.15	3	.17	5	.28	
379	17.16	2045	92.62	2.15 - 2.25	34	1.92	39	2.20	
142	6.43	2187	99.05	2.25 - 2.35	128	7.22	167	9.41	
16	.72	2203	99.77	2.35 - 2.45	413	23.28	580	32.69	
5	.23	2208	100.00	2.45 - 2.55	513	28.92	1093	61.61	
				2.55 - 2.65	398	22.44	1491	84.05	
				2.65 - 2.75	209	11.78	1700	95.83	
				2.75 - 2.85	61	3.44	1761	99.27	
				2.85 - 2.95	12	.68	1773	99.94	
					1	.06	1774	100.00	

# (106) THUMB TIP REACH

The horizontal distance from a back wall to the tip of the right thumb is measured on a wall scale. The subject stands erect in a corner looking straight ahead with the feet together and the heels 20 cm from the back wall. The buttocks and shoulders are against the wall. The right arm and hand, palm down, are stretched forward horizontally along a scale on the side wall. The thumb continues the horizontal line of the arm and the index finger curves around to touch the pad at the end of the thumb. The subject's right shoulder is held against the rear wall.



## THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
65.80	25.91	1ST	71.98	28.34
66.49	26.18	2ND	72.69	28.62
66.97	26.37	3RD	73.19	28.81
67.67	26.64	5TH	73.92	29.10
68.81	27.09	10TH	75.14	29.58
69.63	27.41	15TH	76.02	29.93
70.30	27.68	20TH	76.74	30.21
70.89	27.91	25TH	77.37	30.46
71.43	28.12	30TH	77.95	30.69
71.93	28.32	35TH	78.48	30.90
72.41	28.51	40TH	79.00	31.10
72.88	28.69	45TH	79.50	31.30
73.35	28.88	50TH	80.00	31.49
73.82	29.06	55TH	80.50	31.69
74.30	29.25	60TH	81.01	31.89
74.80	29.45	65TH	81.53	32.10
75.33	29.66	70TH	82.09	32.32
75.90	29.88	75TH	82.70	32.56
76.54	30.14	80TH	83.38	32.83
77.29	30.43	85TH	84.17	33.14
78.25	30.81	90TH	85.18	33.54
79.67	31.37	95TH	86.70	34.14
80.60	31.73	97TH	87.71	34.53
81.29	32.01	98TH	88.46	34.83
82.39	32.44	99TH	89.68	35.31

# THUMBTIP REACH

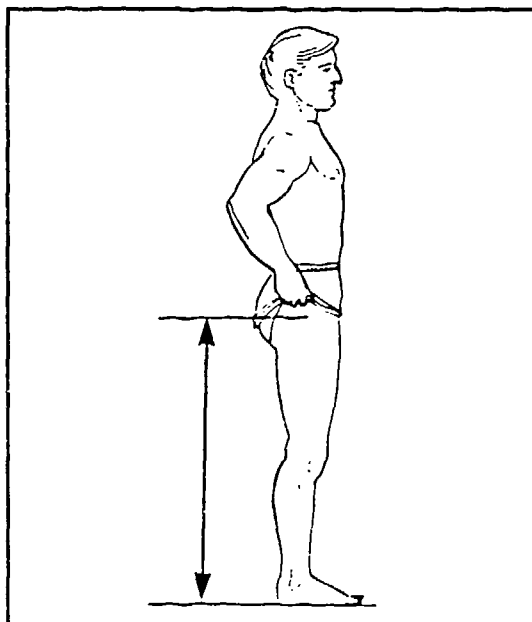
FEMALES			
CM		INCHES	
73.46	MEAN VALUE	28.92	
.08	SE (MEAN)	.03	
3.64	STD DEVIATION	1.43	
.05	SE (STD DEV)	.02	
60.50	MINIMUM	23.82	
89.80	MAXIMUM	35.35	
SYMMETRY---VETA I = .19			
KURTOSIS---VETA II = 3.06			
COEF. OF VARIATION = 5.0%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
80.08	MEAN VALUE	31.53	
.09	SE (MEAN)	.04	
3.92	STD DEVIATION	1.54	
.07	SE (STD DEV)	.03	
66.20	MINIMUM	26.06	
98.00	MAXIMUM	38.58	
SYMMETRY---VETA I = .18			
KURTOSIS---VETA II = 3.19			
COEF. OF VARIATION = 4.9%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	59.55 -	60.55						
0	.00	1	.05	60.55 -	61.55						
0	.00	1	.05	61.55 -	62.55						
4	.18	5	.23	62.55 -	63.55						
6	.27	11	.50	63.55 -	64.55						
9	.41	20	.91	64.55 -	65.55						
23	1.04	43	1.95	65.55 -	66.55	1	.06	1	.06		
52	2.36	95	4.30	66.55 -	67.55	2	.11	3	.17		
90	4.08	185	8.38	67.55 -	68.55	0	.00	3	.17		
136	5.16	321	14.54	68.55 -	69.55	1	.06	4	.23		
166	7.52	487	22.06	69.55 -	70.55	5	.28	9	.51		
209	9.47	696	31.52	70.55 -	71.55	6	.34	15	.85		
223	10.10	919	41.62	71.55 -	72.55	16	.90	31	1.75		
246	11.14	1165	52.76	72.55 -	73.55	38	2.14	69	3.89		
229	10.37	1394	63.13	73.55 -	74.55	70	3.95	139	7.84		
182	8.24	1576	71.38	74.55 -	75.55	98	4.96	227	12.80		
202	9.15	1778	80.53	75.55 -	76.55	113	6.37	340	19.17		
141	6.39	1919	86.91	76.55 -	77.55	144	8.12	484	27.28		
112	5.07	2031	91.98	77.55 -	78.55	152	8.57	636	35.85		
66	2.99	2097	94.97	78.55 -	79.55	171	9.64	807	45.49		
42	1.90	2139	96.88	79.55 -	80.55	176	9.92	983	55.41		
33	1.49	2172	98.37	80.55 -	81.55	179	10.09	1162	65.50		
18	.82	2190	99.18	81.55 -	82.55	157	8.85	1319	74.35		
11	.50	2201	99.68	82.55 -	83.55	122	6.88	1441	81.23		
3	.14	2204	99.82	83.55 -	84.55	110	6.20	1551	87.43		
2	.09	2206	99.91	84.55 -	85.55	78	4.40	1629	91.83		
0	.00	2206	99.91	85.55 -	86.55	57	3.21	1686	95.04		
0	.00	2206	99.91	86.55 -	87.55	36	2.03	1722	97.07		
1	.05	2207	99.95	87.55 -	88.55	13	.73	1735	97.80		
0	.00	2207	99.95	88.55 -	89.55	23	1.30	1758	99.10		
1	.05	2208	100.00	89.55 -	90.55	5	.28	1763	99.38		
				90.55 -	91.55	7	.39	1770	99.77		
				91.55 -	92.55	2	.11	1772	99.89		
				92.55 -	93.55	0	.00	1772	99.89		
				93.55 -	94.55	0	.00	1772	99.89		
				94.55 -	95.55	0	.00	1772	99.89		
				95.55 -	96.55	1	.06	1773	99.94		
				96.55 -	97.55	0	.00	1773	99.94		
				97.55 -	98.55	1	.06	1774	100.00		

# (107) TROCHANTERION HEIGHT\*

The vertical distance between a standing surface and the trochanterion landmark on the upper side of the right thigh is measured with an anthropometer. The subject stands erect looking straight ahead. The heels are together with the weight distributed equally on both feet.



## THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
76.05	29.94	1ST	82.13	32.33	
77.19	30.39	2ND	83.44	32.85	
77.93	30.68	3RD	84.23	33.16	
78.93	31.08	5TH	85.29	33.58	
80.48	31.69	10TH	86.87	34.20	
81.54	32.10	15TH	87.94	34.62	
82.37	32.43	20TH	88.79	34.96	
83.09	32.71	25TH	89.54	35.25	
83.74	32.97	30TH	90.21	35.52	
84.34	33.21	35TH	90.85	35.77	
84.92	33.43	40TH	91.45	36.01	
85.47	33.65	45TH	92.05	36.24	
86.03	33.87	50TH	92.65	36.48	
86.59	34.09	55TH	93.25	36.71	
87.15	34.31	60TH	93.87	36.96	
87.74	34.54	65TH	94.52	37.21	
88.37	34.79	70TH	95.21	37.49	
89.06	35.06	75TH	95.97	37.78	
89.84	35.37	80TH	96.82	38.12	
90.75	35.73	85TH	97.81	38.51	
91.94	36.20	90TH	99.06	39.00	
93.77	36.92	95TH	100.89	39.72	
95.01	37.41	97TH	102.03	40.17	
95.96	37.78	98TH	102.83	40.49	
97.50	38.39	99TH	104.02	40.95	

\* Same as Trochanteric Height in previous reports.

# TROCHANTERION HEIGHT

FEMALES			
CM		INCHES	
86.16	MEAN VALUE	33.92	
.10	SE(MEAN)	.04	
4.52	STD DEVIATION	1.78	
.07	SE(STD DEV)	.03	
67.30	MINIMUM	26.50	
106.20	MAXIMUM	41.81	
SYMMETRY---VETA I = .20			
KURTOSIS---VETA II = 3.33			
COEF. OF VARIATION = 5.3%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
92.83	MEAN VALUE	36.55	
.11	SE(MEAN)	.04	
4.77	STD DEVIATION	1.88	
.08	SE(STD DEV)	.03	
75.00	MINIMUM	29.53	
116.20	MAXIMUM	45.75	
SYMMETRY---VETA I = .20			
KURTOSIS---VETA II = 3.32			
COEF. OF VARIATION = 5.1%			
NUMBER OF SUBJECTS = 1774			

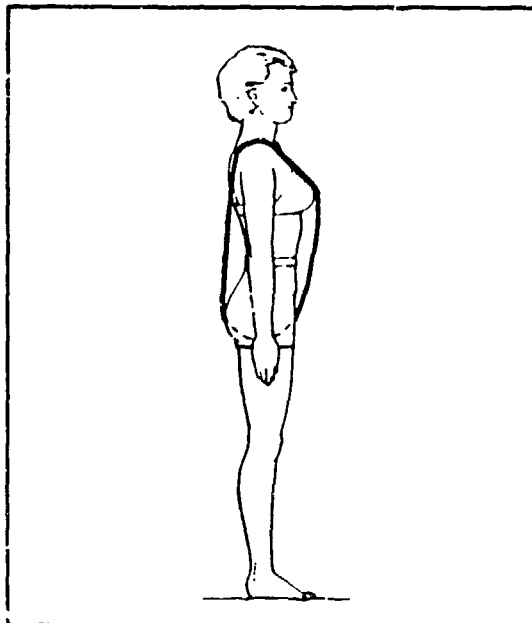
FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	66.55	- 67.55						
0	.00	1	.05	67.55	- 68.55						
0	.00	1	.05	68.55	- 69.55						
0	.00	1	.05	69.55	- 70.55						
1	.05	2	.09	70.55	- 71.55						
0	.00	2	.09	71.55	- 72.55						
1	.05	3	.14	72.55	- 73.55						
3	.14	6	.27	73.55	- 74.55						
9	.41	15	.68	74.55	- 75.55						
19	.86	34	1.54	75.55	- 76.55	1	.06	1	.06		
18	.82	52	2.36	76.55	- 77.55	0	.00	1	.06		
32	1.45	84	3.80	77.55	- 78.55	0	.00	1	.06		
56	2.54	140	6.34	78.55	- 79.55	4	.23	5	.28		
76	3.44	216	9.78	79.55	- 80.55	2	.11	7	.39		
105	4.76	321	14.54	80.55	- 81.55	5	.28	12	.68		
153	6.93	474	21.47	81.55	- 82.55	8	.45	20	1.13		
160	7.25	634	28.71	82.55	- 83.55	19	1.07	39	2.20		
199	9.01	833	37.73	83.55	- 84.55	16	.90	55	3.10		
186	8.42	1019	46.15	84.55	- 85.55	42	2.37	97	5.47		
196	8.88	1215	55.03	85.55	- 86.55	55	3.10	152	8.57		
166	7.52	1381	62.55	86.55	- 87.55	68	3.83	220	12.40		
181	8.20	1562	70.74	87.55	- 88.55	105	5.92	325	18.32		
163	7.38	1725	78.13	88.55	- 89.55	127	7.16	452	25.48		
124	5.62	1849	83.74	89.55	- 90.55	130	7.33	582	32.81		
102	4.62	1951	88.36	90.55	- 91.55	141	7.95	723	40.76		
82	3.71	2033	92.07	91.55	- 92.55	162	9.13	885	49.89		
56	2.54	2089	94.61	92.55	- 93.55	143	8.06	1028	57.95		
44	1.99	2133	96.60	93.55	- 94.55	130	7.33	1158	65.28		
23	1.04	2156	97.64	94.55	- 95.55	119	6.71	1277	71.98		
19	.86	2175	98.51	95.55	- 96.55	108	6.09	1385	78.07		
12	.54	2187	99.05	96.55	- 97.55	104	5.86	1489	83.93		
6	.27	2193	99.32	97.55	- 98.55	69	3.89	1558	87.82		
7	.32	2200	99.64	98.55	- 99.55	64	3.61	1622	91.43		
0	.00	2200	99.64	99.55	- 100.55	56	3.16	1678	94.59		
3	.14	2203	99.77	100.55	- 101.55	33	1.86	1711	96.45		
4	.18	2207	99.95	101.55	- 102.55	23	1.30	1734	97.75		
0	.00	2207	99.95	102.55	- 103.55	17	.96	1751	98.70		
0	.00	2207	99.95	103.55	- 104.55	9	.51	1760	99.21		
0	.00	2207	99.95	104.55	- 105.55	4	.23	1764	99.44		
1	.05	2208	100.00	105.55	- 106.55	4	.23	1768	99.66		
				106.55	- 107.55	2	.11	1770	99.77		
				107.55	- 108.55	0	.00	1770	99.77		
				108.55	- 109.55	2	.11	1772	99.89		
				109.55	- 110.55	0	.00	1772	99.89		
				110.55	- 111.55	0	.00	1772	99.89		
				111.55	- 112.55	1	.06	1773	99.94		
				112.55	- 113.55	0	.00	1773	99.94		
				113.55	- 114.55	0	.00	1773	99.94		
				114.55	- 115.55	0	.00	1773	99.94		
				115.55	- 116.55	1	.06	1774	100.00		



# (108) VERTICAL TRUNK CIRCUMFERENCE (ASCC)\*

The vertical circumference of the torso is measured with a tape passing between the buttocks, to the right of the genitalia, over the right bustpoint landmark on women or the nipple (thelion) on men, and across the midshoulder landmark. The subject stands erect looking straight ahead with the right arm hanging relaxed at the side. The heels are together with the weight distributed equally on both feet. The measurement is taken at the midpoint of quiet respiration.

\* Aircrew Standardization Coordinating Committee



## THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
134.43	52.93	1ST	141.22	55.60
135.81	53.47	2ND	143.39	56.45
136.75	53.84	3RD	144.75	56.99
138.10	54.37	5TH	146.57	57.71
140.31	55.24	10TH	149.33	58.79
141.87	55.85	15TH	151.17	59.51
143.12	56.35	20TH	152.60	60.08
144.22	56.78	25TH	153.83	60.56
145.20	57.17	30TH	154.93	60.99
146.12	57.53	35TH	155.94	61.39
147.00	57.87	40TH	156.89	61.77
147.85	58.21	45TH	157.82	62.13
148.70	58.54	50TH	158.74	62.50
149.55	58.88	55TH	159.67	62.86
150.41	59.22	60TH	160.61	63.23
151.31	59.57	65TH	161.59	63.62
152.26	59.94	70TH	162.64	64.03
153.29	60.35	75TH	163.78	64.48
154.47	60.81	80TH	165.09	65.00
155.84	61.36	85TH	166.64	65.60
157.63	62.06	90TH	168.67	66.40
160.38	63.14	95TH	171.85	67.66
162.26	63.88	97TH	174.06	68.53
163.71	64.45	98TH	175.77	69.20
166.11	65.40	99TH	178.62	2

# VERTICAL TRUNK CIRCUMFERENCE (ASCC)

FEMALES		
CM		INCHES
148.89	MEAN VALUE	58.62
.14	SE (MEAN)	.06
6.75	STD DEVIATION	2.66
.10	SE (STD DEV)	.04
128.20	MINIMUM	50.47
174.00	MAXIMUM	68.50
SYMMETRY---VETA I = .20		
KURTOSIS---VETA II = 3.08		
COEF. OF VARIATION = 4.5%		
NUMBER OF SUBJECTS = 2208		

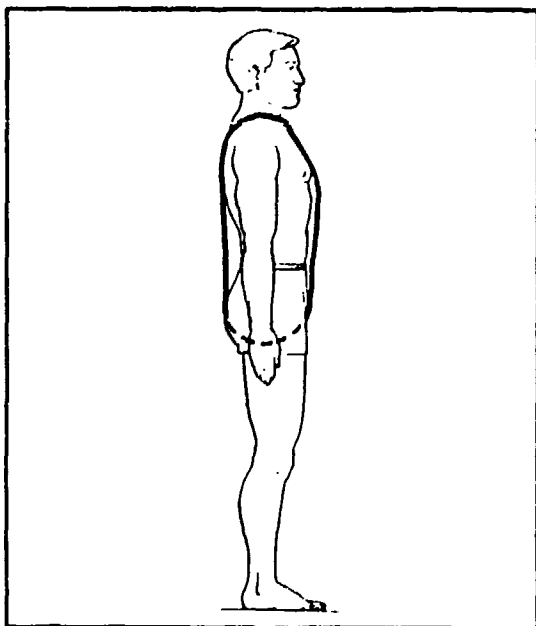
MALES		
CM		INCHES
158.91	MEAN VALUE	62.56
.18	SE (MEAN)	.07
7.74	STD DEVIATION	3.05
.13	SE (STD DEV)	.05
134.00	MINIMUM	52.76
187.50	MAXIMUM	73.82
SYMMETRY---VETA I = .15		
KURTOSIS---VETA II = 3.37		
COEF. OF VARIATION = 4.9%		
NUMBER OF SUBJECTS = 1774		

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS	F	FPct	CumF
1	.05	1	.05	127.75 - 129.25	3	.17	3
1	.05	2	.09	129.25 - 130.75	2	.11	5
8	.36	10	.45	130.75 - 132.25	3	.17	8
7	.32	17	.77	132.25 - 133.75	8	.45	16
14	.63	31	1.40	133.75 - 135.25	3	.17	19
27	1.22	58	2.63	135.25 - 136.75	10	.56	29
51	2.31	109	4.94	136.75 - 138.25	19	1.07	48
93	4.21	202	9.15	138.25 - 139.75	16	.90	64
99	4.48	301	13.63	139.75 - 141.25	43	2.42	107
107	4.85	408	18.48	141.25 - 142.75	50	2.82	157
134	6.07	542	24.55	142.75 - 144.25	67	3.78	224
175	7.93	717	32.47	144.25 - 145.75	79	4.45	303
191	8.65	908	41.12	145.75 - 147.25	97	5.47	400
182	8.24	1090	49.37	147.25 - 148.75	112	6.31	512
208	9.42	1298	58.79	148.75 - 150.25	134	7.55	646
203	9.19	1501	67.98	150.25 - 151.75	148	8.34	794
160	7.25	1661	75.23	151.75 - 153.25	123	8.62	917
140	6.34	1801	81.57	153.25 - 154.75	133	7.50	1050
111	5.03	1912	86.59	154.75 - 156.25	125	7.05	1175
82	3.71	1994	90.31	156.25 - 157.75	105	5.92	1280
64	2.90	2058	93.21	157.75 - 159.25	111	6.26	1391
49	2.22	2107	95.43	159.25 - 160.75	96	5.41	1487
33	1.49	2140	96.92	160.75 - 162.25	74	4.17	1561
22	1.00	2162	97.92	162.25 - 163.75	44	2.48	1605
18	.82	2180	98.73	163.75 - 165.25	38	2.14	1643
14	.63	2194	99.37	165.25 - 166.75	30	1.69	1673
3	.14	2197	99.50	166.75 - 168.25	24	1.35	1697
6	.27	2203	99.77	168.25 - 169.75	11	.62	1708
1	.05	2204	99.82	169.75 - 171.25	6	.34	1714
3	.14	2207	99.95	171.25 - 172.75	12	.68	1726
1	.05	2208	100.00	172.75 - 174.25	6	.34	1732
				174.25 - 175.75	3	.17	1735
				175.75 - 177.25	4	.23	1739
				177.25 - 178.75	1	.06	1740
				178.75 - 180.25	3	.17	1743
				180.25 - 181.75	3	.17	1746
				181.75 - 183.25	1	.06	1747
				183.25 - 184.75	3	.17	1750
				184.75 - 186.25	1	.06	1751
				186.25 - 187.75			

## (109) VERTICAL TRUNK CIRCUMFERENCE (USA)\*

The vertical circumference of the torso is measured with a tape passing over the maximum protrusion of the right buttock, to the right of the genitalia, over the right bustpoint landmark on women or the nipple (thelion) on men, and across the midshoulder landmark. The subject stands erect looking straight ahead with the right arm hanging relaxed at the side. The heels are together with the weight distributed equally on both feet. The measurement is taken at the maximum point of quiet respiration.

\* U.S. Army



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
137.99	54.33	1ST	144.55	56.91
139.57	54.95	2ND	147.11	57.92
140.60	55.35	3RD	148.64	58.52
142.04	55.92	5TH	150.64	59.31
144.32	56.82	10TH	153.54	60.45
145.89	57.44	15TH	155.41	61.18
147.15	57.93	20TH	156.85	61.75
148.26	58.37	25TH	158.09	62.24
149.25	58.76	30TH	159.18	62.67
150.18	59.13	35TH	160.19	63.07
151.07	59.47	40TH	161.15	63.45
151.93	59.81	45TH	162.08	63.81
152.79	60.15	50TH	163.01	64.18
153.66	60.49	55TH	163.95	64.55
154.54	60.84	60TH	164.90	64.92
155.46	61.21	65TH	165.90	65.31
156.44	61.59	70TH	166.96	65.73
157.51	62.01	75TH	168.13	66.19
158.73	62.49	80TH	169.47	66.72
160.16	63.05	85TH	171.06	67.34
162.01	63.78	90TH	173.13	68.16
164.84	64.90	95TH	176.34	69.43
166.76	65.65	97TH	178.53	70.29
168.21	66.22	98TH	180.19	70.94
170.58	67.16	99TH	182.90	72.01

# VERTICAL TRUNK CIRCUMFERENCE (USA)

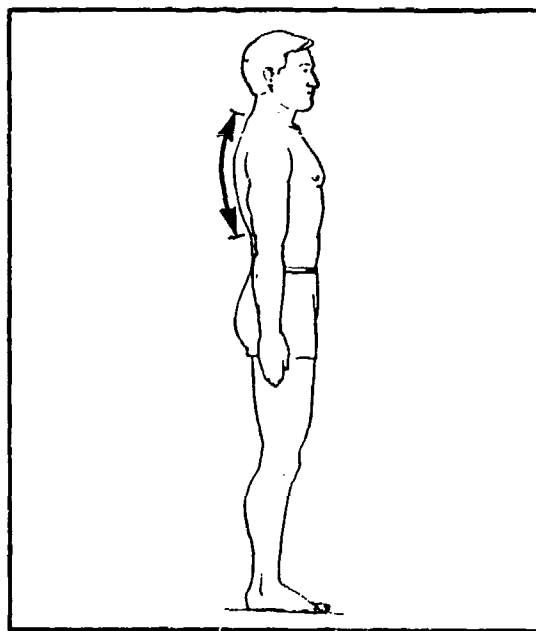
FEMALES			
CM		INCHES	
153.02	MEAN VALUE	60.24	
.15	SE (MEAN)	.06	
6.92	STD DEVIATION	2.72	
.10	SE (STD DEV)	.04	
132.30	MINIMUM	52.09	
177.30	MAXIMUM	69.80	
SYMMETRY---VETA I = .21			
KURTOSIS---VETA II = 3.03			
COEF. OF VARIATION = 4.5%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
163.18	MEAN VALUE	64.24	
.19	SE (MEAN)	.07	
7.81	STD DEVIATION	3.07	
.13	SE (STD DEV)	.05	
137.70	MINIMUM	54.21	
190.40	MAXIMUM	74.96	
SYMMETRY---VETA I = .09			
KURTOSIS---VETA II = 3.31			
COEF. OF VARIATION = 4.8%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	132.25	- 133.75						
3	.14	4	.18	133.75	- 135.25						
8	.36	12	.54	135.25	- 136.75						
14	.63	26	1.18	136.75	- 138.25	3	.17	3	.17		
16	.72	42	1.90	138.25	- 139.75	1	.06	4	.23		
37	1.68	79	3.58	139.75	- 141.25	1	.06	5	.28		
70	3.17	149	6.75	141.25	- 142.75	9	.51	14	.79		
77	3.49	226	10.24	142.75	- 144.25	4	.23	18	1.01		
105	4.76	331	14.99	144.25	- 145.75	6	.34	24	1.35		
109	4.94	440	19.93	145.75	- 147.25	6	.34	30	1.69		
170	7.70	610	27.63	147.25	- 148.75	14	.79	44	2.48		
172	7.79	782	35.42	148.75	- 150.25	32	1.80	76	4.28		
175	7.93	957	43.34	150.25	- 151.75	45	2.54	121	6.82		
190	8.61	1147	51.95	151.75	- 153.25	47	2.65	168	9.47		
207	9.38	1354	61.32	153.25	- 154.75	77	4.34	245	13.81		
184	8.33	1538	69.66	154.75	- 156.25	80	4.51	325	18.32		
148	6.70	1686	76.36	156.25	- 157.75	100	5.64	425	23.96		
130	5.89	1816	82.25	157.75	- 159.25	100	5.64	525	29.59		
102	4.62	1918	86.87	159.25	- 160.75	140	7.89	665	37.49		
80	3.62	1998	90.49	160.75	- 162.25	137	7.72	802	45.21		
61	2.76	2059	93.25	162.25	- 163.75	154	8.68	956	53.89		
49	2.22	2108	95.47	163.75	- 165.25	135	7.61	1091	61.50		
36	1.63	2144	97.10	165.25	- 166.75	139	7.84	1230	69.33		
21	.95	2165	98.05	166.75	- 168.25	110	6.20	1340	75.54		
10	.45	2175	98.51	168.25	- 169.75	88	4.96	1426	80.50		
16	.72	2191	99.23	169.75	- 171.25	88	4.96	1516	85.46		
8	.36	2199	99.59	171.25	- 172.75	76	4.28	1592	89.74		
6	.27	2205	99.86	172.75	- 174.25	47	2.65	1639	92.39		
0	.00	2205	99.86	174.25	- 175.75	36	2.03	1675	94.42		
2	.09	2207	99.95	175.75	- 177.25	30	1.69	1705	96.11		
1	.05	2208	100.00	177.25	- 178.75	21	1.18	1726	97.29		
				178.75	- 180.25	14	.79	1740	98.08		
				180.25	- 181.75	10	.56	1750	98.65		
				181.75	- 183.25	6	.34	1756	98.99		
				183.25	- 184.75	7	.39	1763	99.38		
				184.75	- 186.25	4	.23	1767	99.61		
				186.25	- 187.75	2	.11	1769	99.72		
				187.75	- 189.25	4	.23	1773	99.94		
				189.25	- 190.75	1	.06	1774	100.00		

# (110) WAIST BACK LENGTH (NATURAL INDENTATION)

The surface distance between the cervicale landmark on the back of the neck and the posterior-waist (natural indentation) landmark is measured with a tape. The subject stands erect with the head in the Frankfort plane. The shoulders and upper extremities are relaxed. The measurement is taken at the maximum point of quiet respiration.



## THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
31.35	12.34	1ST	35.98	14.17	
31.88	12.55	2ND	36.49	14.37	
32.23	12.69	3RD	36.85	14.51	
32.73	12.89	5TH	37.35	14.71	
33.54	13.21	10TH	38.17	15.03	
34.11	13.43	15TH	38.74	15.25	
34.57	13.61	20TH	39.20	15.43	
34.98	13.77	25TH	39.60	15.59	
35.35	13.92	30TH	39.95	15.73	
35.69	14.05	35TH	40.28	15.86	
36.02	14.18	40TH	40.59	15.98	
36.34	14.31	45TH	40.89	16.10	
36.65	14.43	50TH	41.19	16.22	
36.97	14.56	55TH	41.48	16.33	
37.30	14.69	60TH	41.78	16.45	
37.64	14.82	65TH	42.09	16.57	
38.00	14.96	70TH	42.41	16.70	
38.39	15.11	75TH	42.76	16.84	
38.83	15.29	80TH	43.15	16.99	
39.34	15.49	85TH	43.61	17.17	
39.99	15.75	90TH	44.19	17.40	
40.98	16.13	95TH	45.06	17.74	
41.62	16.39	97TH	45.65	17.97	
42.11	16.58	98TH	46.11	18.15	
42.88	16.88	99TH	46.85	18.44	

# **WAIST BACK LENGTH (NATURAL INDENTATION)**

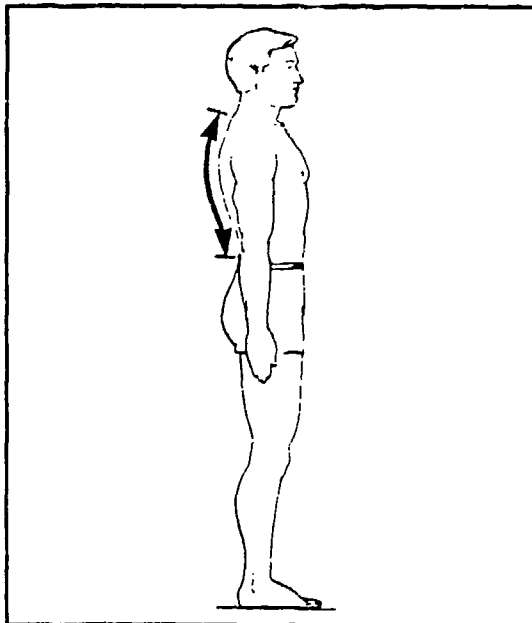
<b>FEMALES</b>			
<u>CM</u>		<u>INCHES</u>	
36.73	MEAN VALUE	14.46	
.05	SE(MEAN)	.02	
2.50	STD DEVIATION	.99	
.04	SE(STD DEV)	.00	
28.30	MINIMUM	11.14	
47.70	MAXIMUM	18.78	
SYMMETRY---VETA I		=	.20
KURTOSIS---VETA II		=	3.07
COEF. OF VARIATION		=	6.8%
NUMBER OF SUBJECTS		=	2208

<b>MALES</b>			
<u>CM</u>		<u>INCHES</u>	
41.20	MEAN VALUE	16.22	
.06	SE(MEAN)	.02	
2.32	STD DEVIATION	.91	
.04	SE(STD DEV)	.02	
34.50	MINIMUM	13.58	
49.30	MAXIMUM	19.41	
SYMMETRY---VETA I		=	.07
KURTOSIS---VETA II		=	2.92
COEF. OF VARIATION		=	5.6%
NUMBER OF SUBJECTS		=	1774

<b>FREQUENCY TABLE</b>											
<b>FEMALES</b>					<b>MALES</b>						
<u>F</u>	<u>FPct</u>	<u>CumF</u>	<u>CumFPct</u>	<u>CENTIMETERS</u>	<u>F</u>	<u>FPct</u>	<u>CumF</u>	<u>CumFPct</u>			
1	.05	1	.05	28.25 - 28.75							
1	.05	2	.09	28.75 - 29.25							
1	.05	3	.14	29.25 - 29.75							
3	.14	6	.27	29.75 - 30.25							
2	.09	8	.36	30.25 - 30.75							
10	.45	18	.82	30.75 - 31.25							
16	.72	34	1.54	31.25 - 31.75							
38	1.72	72	3.26	31.75 - 32.25							
45	2.04	117	5.30	32.25 - 32.75							
58	2.63	175	7.93	32.75 - 33.25							
78	3.53	253	11.46	33.25 - 33.75							
101	4.57	354	16.03	33.75 - 34.25							
106	4.80	460	20.83	34.25 - 34.75	3	.17	3	.17			
154	6.97	614	27.81	34.75 - 35.25	3	.17	6	.34			
183	8.29	797	36.10	35.25 - 35.75	4	.23	10	.56			
178	8.06	975	44.16	35.75 - 36.25	16	.90	26	1.47			
182	8.24	1157	52.40	36.25 - 36.75	25	1.41	51	2.87			
176	7.97	1333	60.37	36.75 - 37.25	35	1.97	86	4.85			
147	6.66	1480	67.03	37.25 - 37.75	32	1.80	118	6.65			
128	5.80	1608	72.83	37.75 - 38.25	64	3.61	182	10.26			
135	6.11	1743	78.94	38.25 - 38.75	79	4.45	261	14.71			
108	4.89	1851	83.83	38.75 - 39.25	93	5.24	354	19.95			
79	3.58	1930	87.41	39.25 - 39.75	121	6.82	475	26.78			
88	3.99	2018	91.39	39.75 - 40.25	144	8.12	619	34.89			
63	2.85	2081	94.25	40.25 - 40.75	135	7.61	754	42.50			
46	2.08	2127	96.33	40.75 - 41.25	160	9.02	914	51.52			
23	1.04	2150	97.37	41.25 - 41.75	153	8.62	1067	60.15			
22	1.00	2172	98.37	41.75 - 42.25	126	7.10	1193	67.25			
10	.45	2182	98.82	42.25 - 42.75	133	7.50	1326	74.75			
11	.50	2193	99.32	42.75 - 43.25	113	6.37	1439	81.12			
6	.27	2199	99.59	43.25 - 43.75	96	5.41	1535	86.53			
3	.14	2202	99.73	43.75 - 44.25	67	3.78	1602	90.30			
3	.14	2205	99.86	44.25 - 44.75	61	3.44	1663	93.74			
2	.09	2207	99.95	44.75 - 45.25	39	2.20	1702	95.94			
0	.00	2207	99.95	45.25 - 45.75	23	1.30	1725	97.24			
0	.00	2207	99.95	45.75 - 46.25	18	1.01	1743	98.25			
0	.00	2207	99.95	46.25 - 46.75	12	.68	1755	98.93			
0	.00	2207	99.95	46.75 - 47.25	10	.56	1765	99.49			
1	.05	2208	100.00	47.25 - 47.75	4	.23	1769	99.72			
				47.75 - 48.25	3	.17	1772	99.89			
				48.25 - 48.75	1	.06	1773	99.94			
				48.75 - 49.25	0	.00	1773	99.94			
				49.25 - 49.75	1	.06	1774	100.00			

# (111) WAIST BACK LENGTH (OMPHALION)

The surface distance between the cervicale landmark at the back of the neck and the posterior-waist (omphalion) landmark at the level of the navel is measured with a tape. The subject stands erect with the head in the Frankfort plane. The shoulders and upper extremities are relaxed. The measurement is taken at the maximum point of quiet respiration.



## THE PERCENTILES

### FEMALES

CM INCHES

38.98 15.35

39.52 15.56

39.87 15.70

40.37 15.89

41.16 16.21

41.72 16.42

42.16 16.60

42.56 16.75

42.91 16.89

43.24 17.02

43.55 17.15

43.85 17.27

44.16 17.39

44.47 17.51

44.78 17.63

45.11 17.76

45.45 17.89

45.83 18.04

46.27 18.22

46.78 18.42

47.44 18.68

48.47 19.08

49.17 19.36

49.71 19.57

50.60 19.92

### MALES

CM INCHES

41.91 16.50

42.53 16.74

42.95 16.91

43.54 17.14

44.47 17.51

45.12 17.76

45.63 17.96

46.06 18.14

46.46 18.29

46.82 18.43

47.16 18.57

47.48 18.69

47.81 18.82

48.13 18.95

48.46 19.08

48.80 19.21

49.16 19.35

49.55 19.51

50.00 19.68

50.52 19.89

51.21 20.16

52.32 20.60

53.10 20.91

53.72 21.15

54.78 21.57

# WAIST BACK LENGTH (OMPHALION)

FEMALES			
<u>CM</u>		<u>INCHES</u>	
44.25	MEAN VALUE	17.42	
.05	SE (MEAN)	.02	
2.46	STD DEVIATION	.97	
.04	SE (STD DEV)	.00	
36.30	MINIMUM	14.29	
55.50	MAXIMUM	21.85	
SYMMETRY---VETA I = .27			
KURTOSIS---VETA II = 3.30			
COEF. OF VARIATION = 5.6%			
NUMBER OF SUBJECTS = 2208			

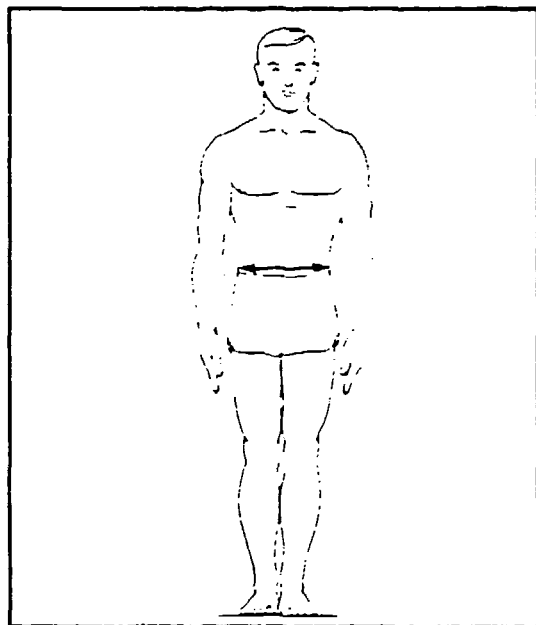
MALES			
<u>CM</u>		<u>INCHES</u>	
47.85	MEAN VALUE	18.84	
.06	SE (MEAN)	.03	
2.68	STD DEVIATION	1.06	
.05	SE (STD DEV)	.02	
38.50	MINIMUM	15.16	
57.10	MAXIMUM	22.48	
SYMMETRY---VETA I = .18			
KURTOSIS---VETA II = 3.24			
COEF. OF VARIATION = 5.6%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE									
FEMALES					MALES				
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>	F	FPct	CumF	CumFPct	
1	.05	1	.05	36.25 - 36.75					
2	.09	3	.14	36.75 - 37.25					
3	.14	6	.27	37.25 - 37.75					
4	.18	10	.45	37.75 - 38.25					
7	.32	17	.77	38.25 - 38.75	1	.06	1	.06	
11	.50	28	1.27	38.75 - 39.25	0	.00	1	.06	
27	1.22	55	2.49	39.25 - 39.75	1	.06	2	.11	
47	2.13	102	4.62	39.75 - 40.25	2	.11	4	.23	
57	2.58	159	7.20	40.25 - 40.75	1	.06	5	.28	
83	3.76	242	10.96	40.75 - 41.25	1	.06	6	.34	
85	3.85	327	14.81	41.25 - 41.75	11	.62	17	.96	
141	6.39	468	21.20	41.75 - 42.25	8	.45	25	1.41	
155	7.02	623	28.22	42.25 - 42.75	16	.90	41	2.31	
148	6.70	771	34.92	42.75 - 43.25	24	1.35	65	3.66	
168	7.61	939	42.53	43.25 - 43.75	30	1.69	95	5.36	
182	8.24	1121	50.77	43.75 - 44.25	51	2.87	146	8.23	
188	8.51	1309	59.28	44.25 - 44.75	58	3.27	204	11.50	
183	8.29	1492	67.57	44.75 - 45.25	80	4.51	284	16.01	
153	6.93	1645	74.50	45.25 - 45.75	114	6.43	398	22.44	
130	5.89	1775	80.39	45.75 - 46.25	103	5.81	501	28.24	
110	4.98	1885	85.37	46.25 - 46.75	118	6.65	619	34.89	
70	3.17	1955	88.54	46.75 - 47.25	136	7.67	755	42.56	
85	3.85	2040	92.39	47.25 - 47.75	120	6.76	875	49.32	
39	1.77	2079	94.16	47.75 - 48.25	124	6.99	999	56.31	
37	1.68	2116	95.83	48.25 - 48.75	123	6.93	1122	63.25	
28	1.27	2144	97.10	48.75 - 49.25	129	7.27	1251	70.52	
18	.82	2162	97.92	49.25 - 49.75	116	6.54	1367	77.06	
19	.86	2181	98.78	49.75 - 50.25	89	5.02	1456	82.07	
9	.41	2190	99.18	50.25 - 50.75	70	3.95	1526	86.02	
2	.09	2192	99.28	50.75 - 51.25	65	3.66	1591	89.68	
7	.32	2199	99.59	51.25 - 51.75	64	3.61	1655	93.29	
5	.23	2204	99.82	51.75 - 52.25	35	1.97	1690	95.26	
2	.09	2206	99.91	52.25 - 52.75	24	1.35	1714	96.62	
1	.05	2207	99.95	52.75 - 53.25	18	1.01	1732	97.63	
0	.00	2207	99.95	53.25 - 53.75	9	.51	1741	98.14	
0	.00	2207	99.95	53.75 - 54.25	7	.39	1748	98.53	
0	.00	2207	99.95	54.25 - 54.75	7	.39	1755	98.93	
0	.00	2207	99.95	54.75 - 55.25	3	.17	1758	99.10	
1	.05	2208	100.00	55.25 - 55.75	4	.23	1762	99.32	
				55.75 - 56.25	5	.28	1767	99.61	
				56.25 - 56.75	3	.17	1770	99.77	
				56.75 - 57.25	4	.23	1774	100.00	



## (112) WAIST BREADTH

The horizontal breadth of the waist at the level of omphalion is measured with a beam caliper. The subject stands erect looking straight ahead. The heels are together with the weight distributed equally on both feet. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
23.72	9.34	1ST	24.98	9.83
24.18	9.52	2ND	25.59	10.08
24.48	9.64	3RD	25.98	10.23
24.89	9.80	5TH	26.51	10.44
25.58	10.07	10TH	27.36	10.77
26.07	10.26	15TH	27.95	11.00
26.49	10.43	20TH	28.43	11.19
26.88	10.58	25TH	28.87	11.36
27.24	10.72	30TH	29.26	11.52
27.59	10.86	35TH	29.64	11.67
27.93	11.00	40TH	30.00	11.81
28.27	11.13	45TH	30.36	11.95
28.63	11.27	50TH	30.73	12.10
28.99	11.41	55TH	31.10	12.24
29.38	11.57	60TH	31.48	12.39
29.78	11.73	65TH	31.88	12.55
30.23	11.90	70TH	32.31	12.72
30.72	12.09	75TH	32.79	12.91
31.29	12.32	80TH	33.32	13.12
31.97	12.59	85TH	33.95	13.37
32.86	12.94	90TH	34.76	13.68
34.22	13.47	95TH	35.95	14.16
35.11	13.82	97TH	36.72	14.46
35.77	14.08	98TH	37.27	14.67
36.79	14.49	99TH	38.11	15.01

# WAIST BREADTH

## FEMALES

<u>CM</u>		<u>INCHES</u>
28.97	MEAN VALUE	11.40
.06	SE(MEAN)	.02
2.83	STD DEVIATION	1.11
.04	SE(STD DEV)	.02
22.50	MINIMUM	8.86
39.00	MAXIMUM	15.35

SYMMETRY---VETA I = .57  
 KURTOSIS---VETA II = 3.12  
 COEF. OF VARIATION = 9.8%  
 NUMBER OF SUBJECTS = 2208

## MALES

<u>CM</u>		<u>INCHES</u>
30.93	MEAN VALUE	12.18
.07	SE(MEAN)	.03
2.87	STD DEVIATION	1.13
.05	SE(STD DEV)	.02
23.50	MINIMUM	9.25
40.50	MAXIMUM	15.94

SYMMETRY---VETA I = .34  
 KURTOSIS---VETA II = 2.91  
 COEF. OF VARIATION = 9.3%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
1	.05	1	.05
7	.32	8	.36
13	.59	21	.95
27	1.22	48	2.17
49	2.22	97	4.39
68	3.08	165	7.47
95	4.30	260	11.78
112	5.07	372	16.85
135	6.11	507	22.96
149	6.75	656	29.71
151	6.84	807	36.55
170	7.70	977	44.25
157	7.11	1134	51.36
150	6.79	1284	58.15
166	7.52	1450	65.67
119	5.39	1569	71.06
95	4.30	1664	75.36
104	4.71	1768	80.07
79	3.58	1847	83.65
69	3.13	1916	86.78
65	2.94	1981	89.72
45	2.04	2026	91.76
43	1.95	2069	93.70
30	1.36	2099	95.06
32	1.45	2131	96.51
11	.50	2142	97.01
20	.91	2162	97.92
10	.45	2172	98.37
16	.72	2188	99.09
10	.45	2198	99.55
6	.27	2204	99.82
0	.00	2204	99.82
3	.14	2207	99.95
1	.05	2208	100.00

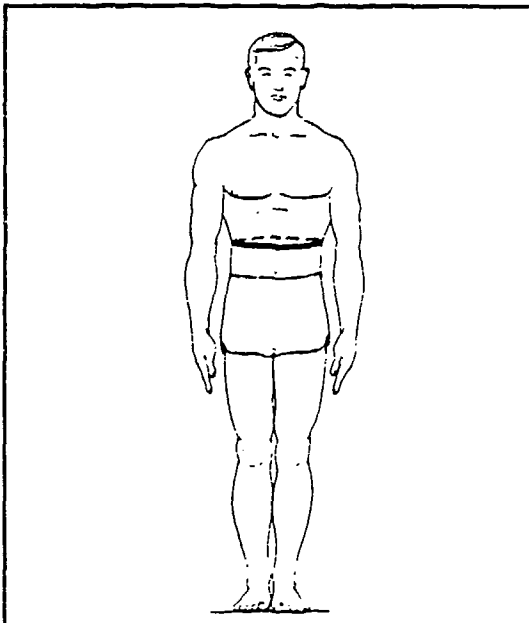
<u>CENTIMETERS</u>
22.25 - 22.75
22.75 - 23.25
23.25 - 23.75
23.75 - 24.25
24.25 - 24.75
24.75 - 25.25
25.25 - 25.75
25.75 - 26.25
26.25 - 26.75
26.75 - 27.25
27.25 - 27.75
27.75 - 28.25
28.25 - 28.75
28.75 - 29.25
29.25 - 29.75
29.75 - 30.25
30.25 - 30.75
30.75 - 31.25
31.25 - 31.75
31.75 - 32.25
32.25 - 32.75
32.75 - 33.25
33.25 - 33.75
33.75 - 34.25
34.25 - 34.75
34.75 - 35.25
35.25 - 35.75
35.75 - 36.25
36.25 - 36.75
36.75 - 37.25
37.25 - 37.75
37.75 - 38.25
38.25 - 38.75
38.75 - 39.25
39.25 - 39.75
39.75 - 40.25
40.25 - 40.75

### MALES

F	FPct	CumF	CumFPct
2	.11	2	.11
3	.17	5	.28
8	.45	13	.73
10	.56	23	1.30
20	1.13	43	2.42
23	1.30	66	3.72
40	2.25	106	5.98
58	3.27	164	9.24
67	3.78	231	13.02
76	4.28	307	17.31
102	5.75	409	23.06
124	6.99	533	30.05
120	6.76	653	36.81
127	7.16	780	43.97
114	6.43	894	50.39
131	7.38	1025	57.78
105	5.92	1130	63.70
96	5.41	1226	69.11
97	5.47	1323	74.58
79	4.45	1402	79.03
74	4.17	1476	83.20
56	3.16	1532	86.36
60	3.38	1592	89.74
38	2.14	1630	91.88
45	2.54	1675	94.42
28	1.58	1703	96.00
22	1.24	1725	97.24
16	.90	1741	98.14
8	.45	1749	98.59
8	.45	1757	99.04
4	.23	1761	99.27
7	.39	1768	99.66
2	.11	1770	99.77
2	.11	1772	99.89
2	.11	1774	100.00

## (113) WAIST CIRCUMFERENCE (NATURAL INDENTATION)

The horizontal circumference of the waist at the level of its natural indentation is measured with a tape passing over right and left waist (natural indentation) landmarks. The subject stands erect looking straight ahead. The heels are together with the weight distributed equally on both feet. The measurement is made at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
60.69	23.89	1ST	69.92	27.53	
61.96	24.39	2ND	71.07	27.98	
62.72	24.69	3RD	71.85	28.29	
63.74	25.09	5TH	72.99	28.73	
65.30	25.71	10TH	74.91	29.49	
66.38	26.13	15TH	76.33	30.05	
67.27	26.49	20TH	77.53	30.52	
68.08	26.80	25TH	78.61	30.95	
68.83	27.10	30TH	79.61	31.34	
69.55	27.38	35TH	80.58	31.72	
70.27	27.66	40TH	81.52	32.09	
70.99	27.95	45TH	82.45	32.46	
71.73	28.24	50TH	83.40	32.83	
72.50	28.54	55TH	84.36	33.21	
73.31	28.86	60TH	85.36	33.61	
74.18	29.20	65TH	86.41	34.02	
75.13	29.58	70TH	87.54	34.47	
76.21	30.01	75TH	88.79	34.96	
77.48	30.50	80TH	90.20	35.51	
79.01	31.11	85TH	91.86	36.17	
81.07	31.92	90TH	93.98	37.00	
84.32	33.20	95TH	97.14	38.24	
86.56	34.08	97TH	99.16	39.04	
88.27	34.75	98TH	100.62	39.62	
91.03	35.84	99TH	102.86	40.50	

# **WAIST CIRCUMFERENCE (NATURAL INDENTATION)**

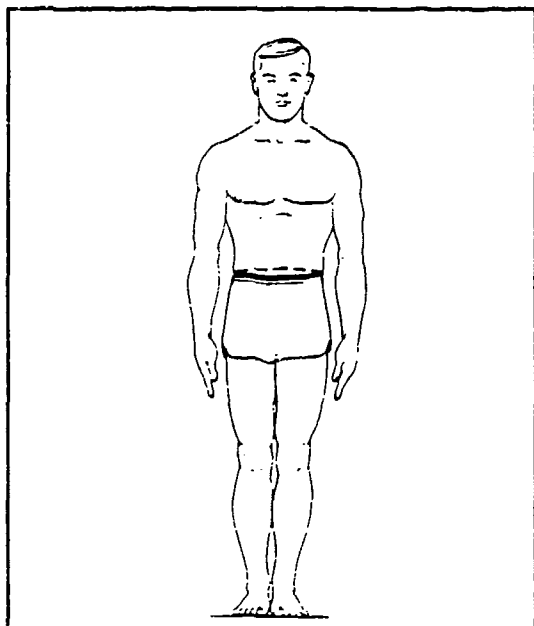
FEMALES			
<u>CM</u>		<u>INCHES</u>	
72.55	MEAN VALUE	28.56	
.13	SE(MEAN)	.05	
6.30	STD DEVIATION	2.48	
.09	SE(STD DEV)	.04	
56.80	MINIMUM	22.36	
98.70	MAXIMUM	38.86	
SYMMETRY---VETA I	=	.73	
KURTOSIS---VETA II	=	3.72	
COEF. OF VARIATION	=	8.7%	
NUMBER OF SUBJECTS	=	2208	

MALES			
<u>CM</u>		<u>INCHES</u>	
83.99	MEAN VALUE	33.07	
.18	SE(MEAN)	.07	
7.40	STD DEVIATION	2.91	
.12	SE(STD DEV)	.05	
64.70	MINIMUM	25.47	
112.20	MAXIMUM	44.17	
SYMMETRY---VETA I	=	.41	
KURTOSIS---VETA II	=	2.96	
COEF. OF VARIATION	=	8.8%	
NUMBER OF SUBJECTS	=	1774	

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct	CumF	CumFPct		
3	.14	3	.14	56.75 -	58.25						
6	.27	9	.41	59.25 -	59.75						
19	.86	28	1.27	59.75 -	61.25						
48	2.17	76	3.44	61.25 -	62.75						
61	2.76	137	6.20	62.75 -	64.25						
129	5.84	266	12.05	64.25 -	65.75	2	.11	2	.11		
157	7.11	423	19.16	65.75 -	67.25	2	.11	4	.23		
215	9.74	638	28.89	67.25 -	68.75	9	.51	13	.73		
222	10.05	860	38.95	68.75 -	70.25	9	.51	22	1.24		
252	11.41	1112	50.36	70.25 -	71.75	21	1.18	43	2.42		
215	9.74	1327	60.10	71.75 -	73.25	56	3.16	99	5.58		
196	8.88	1523	68.98	73.25 -	74.75	68	3.83	167	9.41		
142	6.43	1665	75.41	74.75 -	76.25	97	5.47	264	14.88		
121	5.48	1786	80.89	76.25 -	77.75	104	5.86	368	20.74		
107	4.85	1893	85.73	77.75 -	79.25	130	7.33	498	28.07		
83	3.76	1976	89.49	79.25 -	80.75	138	7.78	636	35.85		
55	2.49	2031	91.98	80.75 -	82.25	142	8.00	778	43.86		
57	2.58	2088	94.57	82.25 -	83.75	151	8.51	929	52.37		
32	1.45	2120	96.01	83.75 -	85.25	134	7.55	1063	59.92		
21	.95	2141	96.97	85.25 -	86.75	131	7.38	1194	67.31		
18	.82	2159	97.78	86.75 -	88.25	102	5.75	1296	73.06		
18	.82	2177	98.60	88.25 -	89.75	96	5.41	1392	78.47		
13	.59	2190	99.18	89.75 -	91.25	67	3.78	1459	82.24		
7	.32	2197	99.50	91.25 -	92.75	73	4.11	1532	86.36		
4	.18	2201	99.68	92.75 -	94.25	67	3.78	1599	90.14		
2	.09	2203	99.77	94.25 -	95.75	53	2.99	1652	93.12		
3	.14	2206	99.91	95.75 -	97.25	39	2.20	1691	95.32		
2	.09	2208	100.00	97.25 -	98.75	29	1.63	1720	96.96		
				98.75 -	100.25	18	1.01	1738	97.97		
				100.25 -	101.75	14	.79	1752	98.76		
				101.75 -	103.25	3	.17	1755	98.93		
				103.25 -	104.75	11	.62	1766	99.55		
				104.75 -	106.25	2	.11	1768	99.66		
				106.25 -	107.75	3	.17	1771	99.83		
				107.75 -	109.25	0	.00	1771	99.83		
				109.25 -	110.75	1	.06	1772	99.89		
				110.75 -	112.25	2	.11	1774	100.00		

## (114) WAIST CIRCUMFERENCE (OMPHALION)

The horizontal circumference of the waist at the level of the center of the navel (omphalion) is measured with a tape. The subject stands erect looking straight ahead. The heels are together with the weight distributed equally on both feet. The measurement is made at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
64.42	25.36	1ST	69.65	27.42	
65.64	25.84	2ND	71.01	27.96	
66.44	26.16	3RD	71.94	28.32	
67.56	26.60	5TH	73.26	28.84	
69.43	27.34	10TH	75.51	29.73	
70.82	27.88	15TH	77.18	30.39	
72.00	28.35	20TH	78.58	30.94	
73.09	28.78	25TH	79.86	31.44	
74.11	29.18	30TH	81.05	31.91	
75.11	29.57	35TH	82.19	32.36	
76.09	29.96	40TH	83.31	32.80	
77.08	30.35	45TH	84.42	33.24	
78.10	30.75	50TH	85.55	33.68	
79.16	31.17	55TH	86.70	34.13	
80.27	31.60	60TH	87.89	34.60	
81.46	32.07	65TH	89.14	35.09	
82.75	32.58	70TH	90.48	35.62	
84.20	33.15	75TH	91.95	36.20	
85.88	33.81	80TH	93.62	36.86	
87.89	34.60	85TH	95.56	37.62	
90.54	35.65	90TH	98.02	38.59	
94.63	37.26	95TH	101.59	40.00	
97.37	38.33	97TH	103.82	40.87	
99.40	39.13	98TH	105.38	41.49	
102.61	40.40	99TH	107.67	42.39	

# **WAIST CIRCUMFERENCE (OMPHALION)**

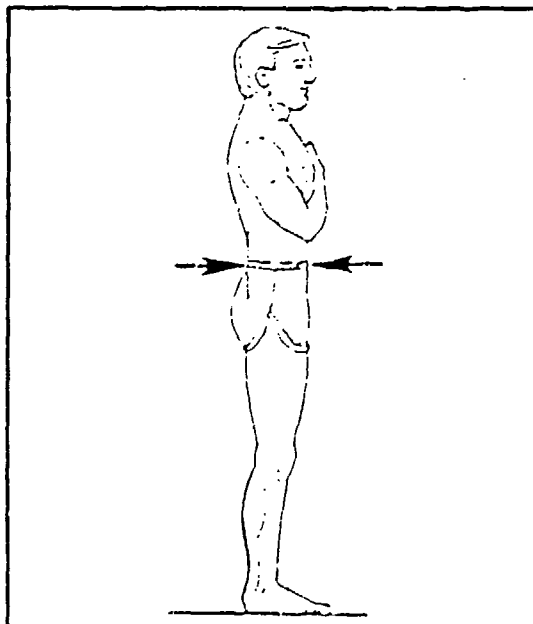
<b>FEMALES</b>			
<u>CM</u>		<u>INCHES</u>	
79.19	MEAN VALUE	31.18	
.18	SE (MEAN)	.07	
8.27	STD DEVIATION	3.26	
.12	SE (STD DEV)	.05	
61.00	MINIMUM	24.02	
110.80	MAXIMUM	43.62	
SYMMETRY---VETA I	=	.67	
KURTOSIS---VETA II	=	3.28	
COEF. OF VARIATION	=	10.4%	
NUMBER OF SUBJECTS	=	2208	

<b>MALES</b>			
<u>CM</u>		<u>INCHES</u>	
86.24	MEAN VALUE	33.95	
.21	SE (MEAN)	.08	
8.64	STD DEVIATION	3.40	
.15	SE (STD DEV)	.06	
65.40	MINIMUM	25.75	
118.50	MAXIMUM	46.65	
SYMMETRY---VETA I	=	.40	
KURTOSIS---VETA II	=	2.85	
COEF. OF VARIATION	=	10.0%	
NUMBER OF SUBJECTS	=	1774	

<b>FREQUENCY TABLE</b>											
<b>FEMALES</b>						<b>MALES</b>					
<u>F</u>	<u>FPct</u>	<u>CumF</u>	<u>CumFPct</u>	<u>CENTIMETERS</u>		<u>F</u>	<u>FPct</u>	<u>CumF</u>	<u>CumFPct</u>		
3	.14	3	.14	60.75 -	62.25						
10	.45	13	.59	62.25 -	63.75						
19	.86	32	1.45	63.75 -	65.25						
45	2.04	77	3.49	65.25 -	66.75	2	.11	2	.11		
68	3.08	145	6.57	66.75 -	68.25	5	.28	7	.39		
91	4.12	236	10.69	68.25 -	69.75	11	.62	18	1.01		
123	5.57	359	16.26	69.75 -	71.25	21	1.18	39	2.20		
158	7.16	517	23.41	71.25 -	72.75	34	1.92	73	4.11		
174	7.88	691	31.30	72.75 -	74.25	38	2.14	111	6.26		
158	7.16	849	38.45	74.25 -	75.75	71	4.00	182	10.26		
151	6.84	1000	45.29	75.75 -	77.25	93	5.24	275	15.50		
171	7.74	1171	53.03	77.25 -	78.75	90	5.07	365	20.57		
142	6.43	1313	59.47	78.75 -	80.25	112	6.31	477	26.89		
148	6.70	1461	66.17	80.25 -	81.75	120	6.76	597	33.65		
136	6.16	1597	72.33	81.75 -	83.25	114	6.43	711	40.08		
103	4.66	1700	76.99	83.25 -	84.75	105	5.92	816	46.00		
112	5.07	1812	82.07	84.75 -	86.25	125	7.05	941	53.04		
65	2.94	1877	85.01	86.25 -	87.75	114	6.43	1055	59.47		
53	2.40	1930	87.41	87.75 -	89.25	113	6.37	1168	65.84		
51	2.31	1981	89.72	89.25 -	90.75	88	4.96	1256	70.80		
51	2.31	2032	92.03	90.75 -	92.25	91	5.13	1347	75.93		
50	2.26	2082	94.29	92.25 -	93.75	73	4.11	1420	80.05		
27	1.22	2109	95.52	93.75 -	95.25	54	3.04	1474	83.09		
26	1.18	2135	96.69	95.25 -	96.75	71	4.00	1545	87.09		
17	.77	2152	97.46	96.75 -	98.25	54	3.04	1599	90.14		
9	.41	2161	97.87	98.25 -	99.75	51	2.87	1650	93.01		
17	.77	2178	98.64	99.75 -	101.25	30	1.69	1680	94.70		
12	.54	2190	99.18	101.25 -	102.75	28	1.58	1708	96.28		
5	.23	2195	99.41	102.75 -	104.25	23	1.30	1731	97.58		
8	.36	2203	99.77	104.25 -	105.75	17	.96	1748	98.53		
1	.05	2204	99.82	105.75 -	107.25	4	.23	1752	98.76		
2	.09	2206	99.91	107.25 -	108.75	8	.45	1760	99.21		
1	.05	2207	99.95	108.75 -	110.25	8	.45	1768	99.66		
1	.05	2208	100.00	110.25 -	111.75	0	.00	1768	99.66		
				111.75 -	113.25	1	.06	1769	99.72		
				113.25 -	114.75	2	.11	1771	99.83		
				114.75 -	116.25	0	.00	1771	99.83		
				116.25 -	117.75	2	.11	1773	99.94		
				117.75 -	119.25	1	.06	1774	100.00		

## (115) WAIST DEPTH

The horizontal distance between the front and back of the waist at the level of the center of the navel (omphalion) is measured with a beam caliper. The subject stands erect looking straight ahead. The heels are together with the weight distributed equally on both feet. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
15.84	6.24	1ST	17.91	7.05	
16.34	6.43	2ND	18.32	7.21	
16.62	6.54	3RD	18.59	7.32	
16.99	6.69	5TH	18.95	7.46	
17.56	6.91	10TH	19.56	7.70	
17.95	7.07	15TH	20.01	7.88	
18.28	7.20	20TH	20.39	8.03	
18.58	7.32	25TH	20.74	8.16	
18.87	7.43	30TH	21.06	8.29	
19.15	7.54	35TH	21.37	8.42	
19.43	7.65	40TH	21.68	8.54	
19.72	7.76	45TH	21.99	8.66	
20.01	7.88	50TH	22.31	8.78	
20.32	8.00	55TH	22.64	8.91	
20.65	8.13	60TH	22.98	9.05	
21.01	8.27	65TH	23.35	9.19	
21.40	8.43	70TH	23.75	9.35	
21.84	8.60	75TH	24.19	9.52	
22.36	8.80	80TH	24.70	9.72	
22.99	9.05	85TH	25.30	9.96	
23.81	9.37	90TH	26.09	10.27	
25.09	9.88	95TH	27.28	10.74	
25.93	10.21	97TH	28.06	11.05	
26.55	10.45	98TH	28.62	11.27	
27.50	10.83	99TH	29.50	11.61	

# WAIST DEPTH

FEMALES			
CM		INCHES	
20.39	MEAN VALUE	8.03	
.05	SE (MEAN)	.02	
2.49	STD DEVIATION	.98	
.04	SE (STD DEV)	.00	
14.70	MINIMUM	5.79	
30.40	MAXIMUM	11.97	
SYMMETRY---VETA I		=	.75
KURTOSIS---VETA II		=	3.56
COEF. OF VARIATION		=	12.2%
NUMBER OF SUBJECTS		=	2208

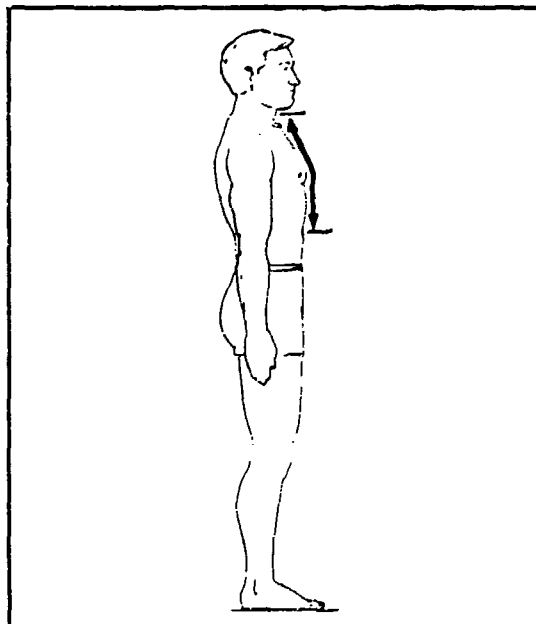
MALES			
CM		INCHES	
22.62	MEAN VALUE	8.91	
.06	SE (MEAN)	.02	
2.56	STD DEVIATION	1.01	
.04	SE (STD DEV)	.02	
15.90	MINIMUM	6.26	
33.20	MAXIMUM	13.07	
SYMMETRY---VETA I		=	.61
KURTOSIS---VETA II		=	3.35
COEF. OF VARIATION		=	11.3%
NUMBER OF SUBJECTS		=	1774

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	14.25 -	14.75						
3	.14	4	.18	14.75 -	15.25						
14	.63	18	.82	15.25 -	15.75						
15	.68	33	1.49	15.75 -	16.25	1	.06	1	.06		
51	2.31	84	3.80	16.25 -	16.75	0	.00	1	.06		
74	3.35	158	7.16	16.75 -	17.25	4	.23	5	.28		
121	5.48	279	12.64	17.25 -	17.75	7	.39	12	.68		
138	6.25	417	18.89	17.75 -	18.25	18	1.01	30	1.69		
196	8.88	613	27.76	18.25 -	18.75	36	2.03	66	3.72		
186	8.42	799	36.19	18.75 -	19.25	54	3.04	120	6.76		
180	8.15	979	44.34	19.25 -	19.75	90	5.07	210	11.84		
193	8.74	1172	53.08	19.75 -	20.25	90	5.07	300	16.91		
179	8.11	1351	61.19	20.25 -	20.75	155	8.74	455	25.65		
175	7.93	1526	69.11	20.75 -	21.25	137	7.72	592	33.37		
132	5.98	1658	75.09	21.25 -	21.75	147	8.29	739	41.66		
113	5.12	1771	80.21	21.75 -	22.25	138	7.78	877	49.44		
83	3.76	1854	83.97	22.25 -	22.75	124	6.99	1001	56.43		
77	3.49	1931	87.45	22.75 -	23.25	117	6.60	1118	63.02		
53	2.40	1984	89.86	23.25 -	23.75	128	7.22	1246	70.24		
41	1.86	2025	91.71	23.75 -	24.25	98	5.52	1344	75.76		
35	1.59	2060	93.30	24.25 -	24.75	82	4.62	1426	80.38		
35	1.59	2095	94.88	24.75 -	25.25	72	4.06	1498	84.44		
32	1.45	2127	96.33	25.25 -	25.75	63	3.55	1561	87.99		
26	1.18	2153	97.51	25.75 -	26.25	49	2.76	1610	90.76		
19	.86	2172	98.37	26.25 -	26.75	45	2.54	1655	93.29		
13	.59	2185	98.96	26.75 -	27.25	26	1.47	1681	94.76		
3	.14	2188	99.09	27.25 -	27.75	28	1.58	1709	96.34		
10	.45	2198	99.55	27.75 -	28.25	24	1.35	1733	97.69		
4	.18	2202	99.73	28.25 -	28.75	10	.56	1743	98.25		
2	.09	2204	99.82	28.75 -	29.25	10	.56	1753	98.82		
2	.09	2206	99.91	29.25 -	29.75	5	.28	1758	99.10		
1	.05	2207	99.95	29.75 -	30.25	7	.39	1765	99.49		
1	.05	2208	100.00	30.25 -	30.75	1	.06	1766	99.55		
				30.75 -	31.25	2	.11	1768	99.66		
				31.25 -	31.75	2	.11	1770	99.77		
				31.75 -	32.25	0	.00	1770	99.77		
				32.25 -	32.75	2	.11	1772	99.89		
				32.75 -	33.25	2	.11	1774	100.00		



## (116) WAIST FRONT LENGTH (NATURAL INDENTATION)

The surface distance between the anterior-neck landmark and the anterior-waist (natural indentation) landmark is measured with a tape. The subject stands erect with the head in the Frankfort plane. The measurement is made at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
26.09	10.27	1ST	29.70	11.69	
26.64	10.49	2ND	30.18	11.88	
27.00	10.63	3RD	30.50	12.01	
27.49	10.82	5TH	30.97	12.19	
28.25	11.12	10TH	31.74	12.50	
28.78	11.33	15TH	32.28	12.71	
29.20	11.50	20TH	32.71	12.88	
29.57	11.64	25TH	33.08	13.02	
29.90	11.77	30TH	33.41	13.15	
30.21	11.89	35TH	33.72	13.28	
30.50	12.01	40TH	34.01	13.39	
30.79	12.12	45TH	34.29	13.50	
31.08	12.23	50TH	34.57	13.61	
31.37	12.35	55TH	34.84	13.72	
31.66	12.47	60TH	35.12	13.83	
31.97	12.59	65TH	35.40	13.94	
32.31	12.72	70TH	35.70	14.06	
32.67	12.86	75TH	36.02	14.18	
33.08	13.03	80TH	36.38	14.32	
33.57	13.22	85TH	36.80	14.49	
34.21	13.47	90TH	37.33	14.70	
35.20	13.86	95TH	38.14	15.01	
35.87	14.12	97TH	38.68	15.23	
36.38	14.32	98TH	39.10	15.39	
37.22	14.65	99TH	39.78	15.66	

# WAIST FRONT LENGTH (NATURAL INDENTATION)

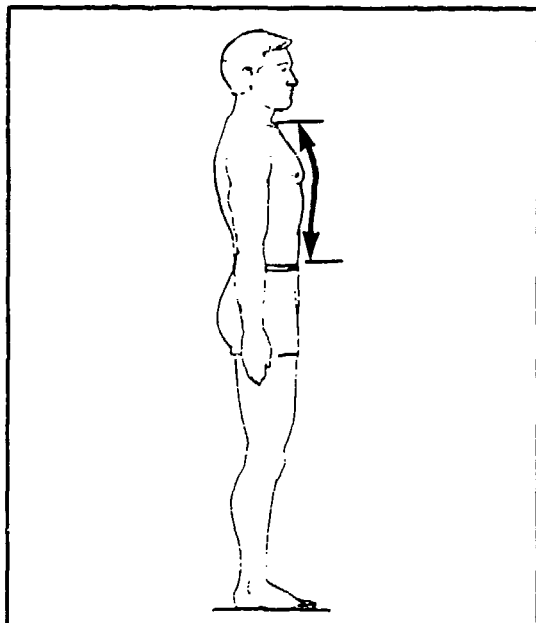
FEMALES			
CM		INCHES	
31.17	MEAN VALUE	12.27	
.05	SE(MEAN)	.02	
2.35	STD DEVIATION	.92	
.04	SE(STD DEV)	.00	
23.80	MINIMUM	9.37	
40.40	MAXIMUM	15.91	
SYMMETRY---VETA I = .25			
KURTOSIS---VETA II = 3.22			
COEF. OF VARIATION = 7.5%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
34.57	MEAN VALUE	13.61	
.05	SE(MEAN)	.02	
2.18	STD DEVIATION	.86	
.04	SE(STD DEV)	.00	
27.80	MINIMUM	10.94	
42.40	MAXIMUM	16.69	
SYMMETRY---VETA I = .08			
KURTOSIS---VETA II = 3.05			
COEF. OF VARIATION = 6.3%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
3	.14	3	.14	23.75 -	24.25						
1	.05	4	.18	24.25 -	24.75						
7	.32	11	.50	24.75 -	25.25						
6	.27	17	.77	25.25 -	25.75						
11	.50	28	1.27	25.75 -	26.25						
15	.68	43	1.95	26.25 -	26.75						
38	1.72	81	3.67	26.75 -	27.25						
60	2.72	141	6.39	27.25 -	27.75						
70	3.17	211	9.56	27.75 -	28.25	2	.11	2	.11		
113	5.12	324	14.67	28.25 -	28.75	5	.28	7	.39		
154	6.97	478	21.65	28.75 -	29.25	6	.34	13	.73		
162	7.34	640	28.99	29.25 -	29.75	7	.39	20	1.13		
158	7.16	798	36.14	29.75 -	30.25	19	1.07	39	2.20		
178	8.06	976	44.20	30.25 -	30.75	28	1.58	67	3.78		
177	8.02	1153	52.22	30.75 -	31.25	45	2.54	112	6.31		
182	8.24	1335	60.46	31.25 -	31.75	57	3.21	169	9.53		
185	8.38	1520	68.84	31.75 -	32.25	89	5.02	258	14.54		
149	6.75	1669	75.59	32.25 -	32.75	109	6.14	367	20.69		
139	6.30	1808	81.88	32.75 -	33.25	131	7.38	498	28.07		
117	5.30	1925	87.18	33.25 -	33.75	144	8.12	642	36.19		
77	3.49	2002	90.67	33.75 -	34.25	148	8.34	790	44.53		
63	2.85	2065	93.52	34.25 -	34.75	157	8.85	947	53.38		
40	1.81	2105	95.34	34.75 -	35.25	160	9.02	1107	62.40		
33	1.49	2138	96.83	35.25 -	35.75	145	8.17	1252	70.57		
22	1.00	2160	97.83	35.75 -	36.25	131	7.38	1383	77.96		
13	.59	2173	98.41	36.25 -	36.75	111	6.26	1494	84.22		
13	.59	2186	99.00	36.75 -	37.25	76	4.28	1570	88.50		
8	.36	2194	99.37	37.25 -	37.75	78	4.40	1648	92.90		
4	.18	2198	99.55	37.75 -	38.25	52	2.93	1700	95.83		
5	.23	2203	99.77	38.25 -	38.75	28	1.58	1728	97.41		
1	.05	2204	99.82	38.75 -	39.25	19	1.07	1747	98.48		
3	.14	2207	99.95	39.25 -	39.75	7	.39	1754	98.87		
0	.00	2207	99.95	39.75 -	40.25	9	.51	1763	99.38		
1	.05	2208	100.00	40.25 -	40.75	2	.11	1765	99.49		
				40.75 -	41.25	4	.23	1769	99.72		
				41.25 -	41.75	1	.06	1770	99.77		
				41.75 -	42.25	3	.17	1773	99.94		
				42.25 -	42.75	1	.06	1774	100.00		

# (117) WAIST FRONT LENGTH (OMPHALION)

The surface distance between the anterior-neck landmark and the center of the navel (omphalion) is measured with a tape. The subject stands erect with the head in the Frankfort plane. The measurement is made at the maximum point of quiet respiration.



## THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
34.24	13.48	1ST	36.10	14.21
34.69	13.66	2ND	36.71	14.45
35.00	13.78	3RD	37.10	14.60
35.45	13.96	5TH	37.62	14.81
36.17	14.24	10TH	38.43	15.13
36.68	14.44	15TH	38.98	15.35
37.09	14.60	20TH	39.41	15.52
37.45	14.74	25TH	39.79	15.66
37.77	14.87	30TH	40.13	15.80
38.07	14.99	35TH	40.44	15.92
38.35	15.10	40TH	40.74	16.04
38.63	15.21	45TH	41.04	16.16
38.90	15.32	50TH	41.33	16.27
39.18	15.43	55TH	41.63	16.39
39.46	15.54	60TH	41.93	16.51
39.75	15.65	65TH	42.25	16.63
40.06	15.77	70TH	42.59	16.77
40.40	15.91	75TH	42.97	16.92
40.79	16.06	80TH	43.40	17.09
41.25	16.24	85TH	43.92	17.29
41.85	16.47	90TH	44.61	17.56
42.79	16.85	95TH	45.69	17.99
43.45	17.11	97TH	46.46	18.29
43.97	17.31	98TH	47.05	18.52
44.84	17.65	99TH	48.04	18.91

# WAIST FRONT LENGTH (OMPHALION)

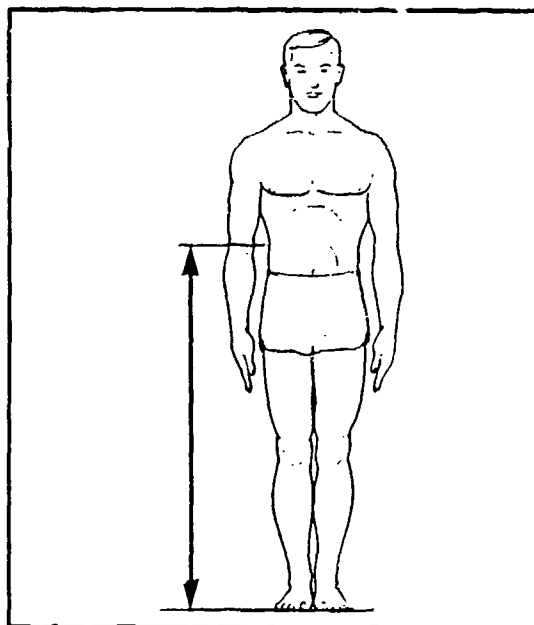
FEMALES			
CM		INCHES	
38.98	MEAN VALUE	15.35	
.05	SE (MEAN)	.02	
2.23	STD DEVIATION	.88	
.03	SE (STD DEV)	.00	
32.30	MINIMUM	12.72	
48.10	MAXIMUM	18.94	
SYMMETRY---VETA I = .28			
KURTOSIS---VETA II = 3.28			
COEF. OF VARIATION = 5.7%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
41.45	MEAN VALUE	16.32	
.06	SE (MEAN)	.02	
2.45	STD DEVIATION	.96	
.04	SE (STD DEV)	.02	
34.00	MINIMUM	13.39	
52.10	MAXIMUM	20.51	
SYMMETRY---VETA I = .34			
KURTOSIS---VETA II = 3.52			
COEF. OF VARIATION = 5.9%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
5	.23	5	.23	32.25 -	32.75						
4	.18	9	.41	32.75 -	33.25						
3	.14	12	.54	33.25 -	33.75						
11	.50	23	1.04	33.75 -	34.25	2	.11	2	.11		
25	1.13	48	2.17	34.25 -	34.75	1	.06	3	.17		
30	1.36	78	3.53	34.75 -	35.25	1	.06	4	.23		
69	3.13	147	6.66	35.25 -	35.75	6	.34	10	.56		
90	4.08	237	10.73	35.75 -	36.25	10	.56	20	1.13		
107	4.85	344	15.58	36.25 -	36.75	16	.90	36	2.03		
143	6.48	487	22.06	36.75 -	37.25	32	1.80	68	3.83		
186	8.42	673	30.48	37.25 -	37.75	32	1.80	100	5.64		
172	7.79	845	38.27	37.75 -	38.25	49	2.76	149	8.40		
206	9.33	1051	47.60	38.25 -	38.75	69	3.89	218	12.29		
177	8.02	1228	55.62	38.75 -	39.25	93	5.24	311	17.53		
200	9.06	1428	64.67	39.25 -	39.75	117	6.60	428	24.13		
176	7.97	1604	72.64	39.75 -	40.25	140	7.89	568	32.02		
144	6.52	1748	79.17	40.25 -	40.75	143	8.06	711	40.08		
134	6.07	1882	85.24	40.75 -	41.25	151	8.51	862	48.59		
97	4.39	1979	89.63	41.25 -	41.75	151	8.51	1013	57.10		
73	3.31	2052	92.93	41.75 -	42.25	142	8.00	1155	65.11		
44	1.99	2096	94.93	42.25 -	42.75	128	7.22	1283	72.32		
34	1.54	2130	96.47	42.75 -	43.25	111	6.26	1394	78.58		
28	1.27	2158	97.74	43.25 -	43.75	87	4.90	1481	83.48		
16	.72	2174	98.46	43.75 -	44.25	85	4.79	1566	88.28		
10	.45	2184	98.91	44.25 -	44.75	57	3.21	1623	91.49		
8	.36	2192	99.28	44.75 -	45.25	39	2.20	1662	93.69		
6	.27	2198	99.55	45.25 -	45.75	25	1.41	1687	95.10		
5	.23	2203	99.77	45.75 -	46.25	20	1.13	1707	96.22		
2	.09	2205	99.86	46.25 -	46.75	22	1.24	1729	97.46		
1	.05	2206	99.91	46.75 -	47.25	15	.85	1744	98.31		
1	.05	2207	99.95	47.25 -	47.75	10	.56	1754	98.87		
1	.05	2208	100.00	47.75 -	48.25	5	.28	1759	99.15		
				48.25 -	48.75	8	.45	1767	99.61		
				48.75 -	49.25	3	.17	1770	99.77		
				49.25 -	49.75	0	.00	1770	99.77		
				49.75 -	50.25	1	.06	1771	99.83		
				50.25 -	50.75	1	.06	1772	99.89		
				50.75 -	51.25	0	.00	1772	99.89		
				51.25 -	51.75	0	.00	1772	99.89		
				51.75 -	52.25	2	.11	1774	100.00		

## (118) WAIST HEIGHT (NATURAL INDENTATION)

The vertical distance between a standing surface and the landmark at the natural indentation of the right waist is measured with an anthropometer. The subject stands erect looking straight ahead. The heels are together with the weight distributed equally on both feet. The shoulders and upper extremities are relaxed. The measurement is made at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
94.14	37.06	1ST	100.91	39.73
95.39	37.56	2ND	102.28	40.27
96.20	37.88	3RD	103.15	40.61
97.32	38.32	5TH	104.31	41.07
99.09	39.01	10TH	106.11	41.78
100.30	39.49	15TH	107.33	42.26
101.26	39.87	20TH	108.30	42.64
102.10	40.20	25TH	109.15	42.97
102.86	40.50	30TH	109.91	43.27
103.56	40.77	35TH	110.62	43.55
104.23	41.04	40TH	111.29	43.82
104.88	41.29	45TH	111.95	44.07
105.53	41.55	50TH	112.60	44.33
106.18	41.80	55TH	113.26	44.59
106.84	42.06	60TH	113.92	44.85
107.52	42.33	65TH	114.62	45.13
108.25	42.62	70TH	115.35	45.41
109.04	42.93	75TH	116.15	45.73
109.93	43.28	80TH	117.05	46.08
110.97	43.69	85TH	118.08	46.49
112.31	44.22	90TH	119.40	47.01
114.33	45.01	95TH	121.34	47.77
115.67	45.54	97TH	122.58	48.26
116.68	45.94	98TH	123.48	48.61
118.30	46.58	99TH	124.86	49.16

# **WAIST HEIGHT (NATURAL INDENTATION)**

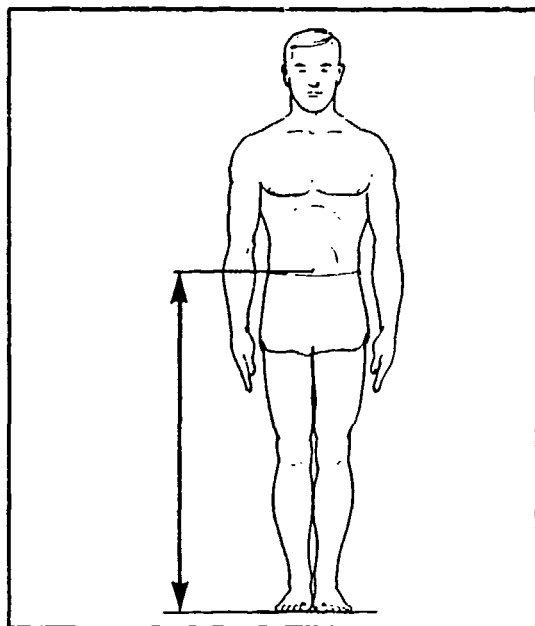
<b>FEMALES</b>		
<u>CM</u>		<u>INCHES</u>
105.65	MEAN VALUE	41.60
.11	SE (MEAN)	.04
5.17	STD DEVIATION	2.04
.08	SE (STD DEV)	.03
86.30	MINIMUM	33.98
123.40	MAXIMUM	48.58
SYMMETRY----	VETA I	= .11
KURTOSIS----	VETA II	= 3.11
COEF. OF VARIATION		= 4.9%
NUMBER OF SUBJECTS		= 2208

<b>MALES</b>		
<u>CM</u>		<u>INCHES</u>
112.71	MEAN VALUE	44.37
.12	SE (MEAN)	.05
5.20	STD DEVIATION	2.05
.09	SE (STD DEV)	.03
91.70	MINIMUM	36.10
134.80	MAXIMUM	53.07
SYMMETRY----	VETA I	= .12
KURTOSIS----	VETA II	= 3.20
COEF. OF VARIATION		= 4.6%
NUMBER OF SUBJECTS		= 1774

<b>FREQUENCY TABLE</b>									
<b>FEMALES</b>					<b>MALES</b>				
<u>F</u>	<u>FPct</u>	<u>CumF</u>	<u>CumFPct</u>	<u>CENTIMETERS</u>	<u>F</u>	<u>FPct</u>	<u>CumF</u>	<u>CumFPct</u>	
1	.05	1	.05	85.55 - 86.55					
0	.00	1	.05	86.55 - 87.55					
0	.00	1	.05	87.55 - 88.55					
2	.09	3	.14	88.55 - 89.55					
2	.09	5	.23	89.55 - 90.55					
1	.05	6	.27	90.55 - 91.55					
5	.23	11	.50	91.55 - 92.55	1	.06	1	.06	
6	.27	17	.77	92.55 - 93.55	0	.00	1	.06	
12	.54	29	1.31	93.55 - 94.55	0	.00	1	.06	
17	.77	46	2.08	94.55 - 95.55	0	.00	1	.06	
31	1.40	77	3.49	95.55 - 96.55	0	.00	1	.06	
40	1.81	117	5.30	96.55 - 97.55	2	.11	3	.17	
61	2.76	178	8.06	97.55 - 98.55	1	.06	4	.23	
68	3.08	246	11.14	98.55 - 99.55	3	.17	7	.39	
114	5.16	360	16.30	99.55 - 100.55	8	.45	15	.85	
121	5.48	481	21.78	100.55 - 101.55	8	.45	23	1.30	
135	6.11	616	27.90	101.55 - 102.55	18	1.01	41	2.31	
146	6.61	762	34.51	102.55 - 103.55	18	1.01	59	3.33	
175	7.93	937	42.44	103.55 - 104.55	32	1.80	91	5.13	
181	8.20	1118	50.63	104.55 - 105.55	52	2.93	143	8.06	
164	7.43	1282	58.06	105.55 - 106.55	57	3.21	200	11.27	
147	6.66	1429	64.72	106.55 - 107.55	78	4.40	278	15.67	
148	6.70	1577	71.42	107.55 - 108.55	102	5.75	380	21.42	
141	6.39	1718	77.81	108.55 - 109.55	112	6.31	492	27.73	
118	5.34	1836	83.15	109.55 - 110.55	124	6.99	616	34.72	
102	4.62	1938	87.77	110.55 - 111.55	142	8.00	758	42.73	
69	3.13	2007	90.90	111.55 - 112.55	140	7.89	898	50.62	
59	2.67	2066	93.57	112.55 - 113.55	126	7.10	1024	57.72	
45	2.04	2111	95.61	113.55 - 114.55	126	7.10	1150	64.83	
32	1.45	2143	97.06	114.55 - 115.55	100	5.64	1250	70.46	
21	.95	2164	98.01	115.55 - 116.55	102	5.75	1352	76.21	
10	.45	2174	98.46	116.55 - 117.55	103	5.81	1455	82.02	
14	.63	2188	99.09	117.55 - 118.55	84	4.74	1539	86.75	
8	.36	2196	99.46	118.55 - 119.55	55	3.10	1594	89.85	
6	.27	2202	99.73	119.55 - 120.55	56	3.16	1650	93.01	
0	.00	2207	99.73	120.55 - 121.55	50	2.82	1700	95.83	
2	.09	2204	99.82	121.55 - 122.55	29	1.63	1729	97.46	
4	.18	2208	100.00	122.55 - 123.55	12	.68	1741	98.14	
				123.55 - 124.55	11	.62	1752	98.76	
				124.55 - 125.55	8	.45	1760	99.21	
				125.55 - 126.55	4	.23	1764	99.44	
				126.55 - 127.55	3	.17	1767	99.61	
				127.55 - 128.55	3	.17	1770	99.77	
				128.55 - 129.55	1	.06	1771	99.83	
				129.55 - 130.55	1	.06	1772	99.89	
				130.55 - 131.55	0	.00	1772	99.89	
				131.55 - 132.55	0	.00	1772	99.89	
				132.55 - 133.55	0	.00	1772	99.89	
				133.55 - 134.55	1	.06	1773	99.94	
				134.55 - 135.55	1	.06	1774	100.00	

## (119) WAIST HEIGHT (OMPHALION)

The vertical distance between a standing surface and the center of the navel (omphalion) is measured with an anthropometer. The subject stands erect looking straight ahead. The heels are together with the weight distributed equally on both feet. The shoulders and upper extremities are relaxed. The measurement is made at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
86.89	34.21	1ST	94.20	37.09
88.30	34.76	2ND	95.61	37.64
89.16	35.10	3RD	96.49	37.99
90.30	35.55	5TH	97.67	38.45
92.01	36.23	10TH	99.46	39.16
93.16	36.68	15TH	100.67	39.63
94.07	37.03	20TH	101.63	40.01
94.86	37.34	25TH	102.45	40.34
95.57	37.62	30TH	103.20	40.63
96.23	37.88	35TH	103.89	40.90
96.86	38.13	40TH	104.54	41.16
97.48	38.38	45TH	105.18	41.41
98.09	38.62	50TH	105.82	41.66
98.71	38.86	55TH	106.45	41.91
99.35	39.11	60TH	107.10	42.17
100.01	39.37	65TH	107.77	42.43
100.71	39.65	70TH	108.48	42.71
101.48	39.95	75TH	109.26	43.01
102.34	40.29	80TH	110.12	43.36
103.34	40.69	85TH	111.13	43.75
104.61	41.19	90TH	112.40	44.25
106.47	41.92	95TH	114.26	44.98
107.65	42.38	97TH	115.45	45.45
108.49	42.71	98TH	116.31	45.79
109.76	43.21	99TH	117.63	46.31

# WAIST HEIGHT (OMPHALION)

FEMALES			
CM		INCHES	
98.21	MEAN VALUE	38.67	
.10	SE (MEAN)	.04	
4.88	STD DEVIATION	1.92	
.07	SE (STD DEV)	.03	
80.20	MINIMUM	31.57	
117.50	MAXIMUM	46.26	
SYMMETRY---VETA I = .09			
KURTOSIS---VETA II = 3.13			
COEF. OF VARIATION = 5.0%			
NUMBER OF SUBJECTS = 2208			

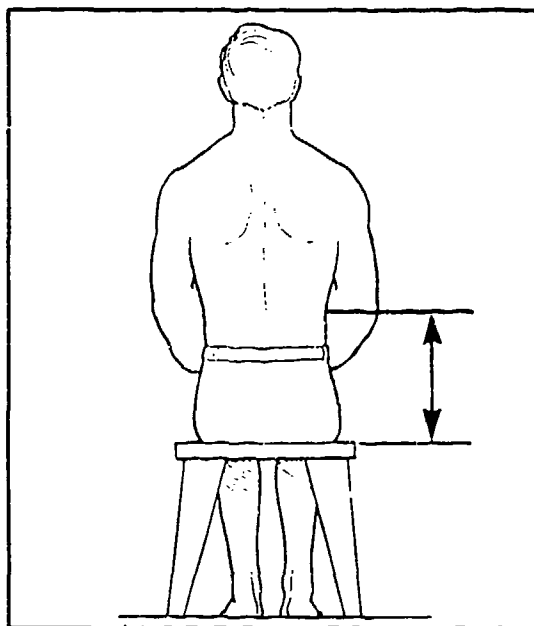
MALES			
CM		INCHES	
105.88	MEAN VALUE	41.69	
.12	SE (MEAN)	.05	
5.09	STD DEVIATION	2.00	
.09	SE (STD DEV)	.03	
86.00	MINIMUM	33.86	
130.50	MAXIMUM	51.38	
SYMMETRY---VETA I = .09			
KURTOSIS---VETA II = 3.35			
COEF. OF VARIATION = 4.8%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE									
FEMALES					MALES				
F	FPct	CumF	CumFPct	CENTIMETERS	F	FPct	CumF	CumFPct	
1	.05	1	.05	79.55 - 80.55					
0	.00	1	.05	80.55 - 81.55					
0	.00	1	.05	81.55 - 82.55					
2	.09	3	.14	82.55 - 83.55					
4	.18	7	.32	83.55 - 84.55					
2	.09	9	.41	84.55 - 85.55					
d	.36	17	.77	85.55 - 86.55	1	.06	1	.06	
14	.63	31	1.40	86.55 - 87.55	0	.00	1	.06	
24	1.09	55	2.49	87.55 - 88.55	0	.00	1	.06	
27	1.22	82	3.71	88.55 - 89.55	1	.06	2	.11	
29	1.31	111	5.03	89.55 - 90.55	1	.06	3	.17	
56	2.54	167	7.56	90.55 - 91.55	2	.11	5	.28	
86	3.89	253	11.46	91.55 - 92.55	2	.11	7	.39	
124	5.62	377	17.07	92.55 - 93.55	6	.34	13	.73	
139	6.30	516	23.37	93.55 - 94.55	8	.45	21	1.18	
147	6.66	663	30.03	94.55 - 95.55	13	.73	34	1.92	
164	7.43	827	37.45	95.55 - 96.55	25	1.41	59	3.33	
182	8.24	1009	45.70	96.55 - 97.55	27	1.52	86	4.85	
185	8.38	1194	54.08	97.55 - 98.55	40	2.25	126	7.10	
166	7.52	1360	61.59	98.55 - 99.55	66	3.72	192	10.82	
163	7.38	1523	68.98	99.55 - 100.55	62	3.49	254	14.32	
131	5.93	1654	74.91	100.55 - 101.55	85	4.79	339	19.11	
141	6.39	1795	81.30	101.55 - 102.55	100	5.64	439	24.75	
123	5.57	1918	86.87	102.55 - 103.55	139	7.84	578	32.58	
82	3.71	2000	90.58	103.55 - 104.55	148	8.34	726	40.92	
61	2.76	2061	93.34	104.55 - 105.55	141	7.95	867	48.87	
44	1.99	2105	95.34	105.55 - 106.55	133	7.50	1000	56.37	
31	1.40	2136	96.74	106.55 - 107.55	128	7.22	1128	63.59	
31	1.40	2167	98.14	107.55 - 108.55	114	6.43	1242	70.01	
17	.77	2184	98.91	108.55 - 109.55	106	5.98	1348	75.99	
8	.36	2192	99.28	109.55 - 110.55	102	5.75	1450	81.74	
6	.27	2198	99.55	110.55 - 111.55	94	5.30	1544	87.03	
5	.23	2203	99.77	111.55 - 112.55	56	3.16	1600	90.19	
2	.09	2205	99.86	112.55 - 113.55	47	2.65	1647	92.84	
1	.05	2206	99.91	113.55 - 114.55	52	2.93	1699	95.77	
1	.05	2207	99.95	114.55 - 115.55	33	1.86	1732	97.63	
0	.00	2207	99.95	115.55 - 116.55	12	.68	1744	98.31	
1	.05	2208	100.00	116.55 - 117.55	11	.62	1755	98.93	
				117.55 - 118.55	7	.39	1762	99.32	
				118.55 - 119.55	6	.34	1768	99.66	
				119.55 - 120.55	2	.11	1770	99.77	
				120.55 - 121.55	1	.06	1771	99.83	
				121.55 - 122.55	1	.06	1772	99.89	
				122.55 - 123.55	0	.00	1772	99.89	
				123.55 - 124.55	0	.00	1772	99.89	
				124.55 - 125.55	0	.00	1772	99.89	
				125.55 - 126.55	0	.00	1772	99.89	
				126.55 - 127.55	0	.00	1772	99.89	
				127.55 - 128.55	1	.06	1773	99.94	
				128.55 - 129.55	0	.00	1773	99.94	
				129.55 - 130.55	1	.06	1774	100.00	



## (120) WAIST HEIGHT, SITTING (NATURAL INDENTATION)

The vertical distance from a sitting surface to the landmark at the natural indentation of the right waist is measured with an anthropometer. The subject sits erect looking straight ahead. The knees are flexed 90 degrees. The measurement is made at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
22.81	8.98	1ST	24.79	9.76	
23.48	9.24	2ND	25.31	9.96	
23.88	9.40	3RD	25.63	10.09	
24.42	9.61	5TH	26.04	10.25	
25.22	9.93	10TH	26.66	10.50	
25.75	10.14	15TH	27.06	10.65	
26.16	10.30	20TH	27.37	10.78	
26.52	10.44	25TH	27.64	10.88	
26.84	10.57	30TH	27.88	10.98	
27.14	10.69	35TH	28.10	11.06	
27.42	10.80	40TH	28 30	11.14	
27.70	10.90	45TH	28.51	11.22	
27.97	11.01	50TH	28.70	11.30	
28.24	11.12	55TH	28.90	11.38	
28.51	11.23	60TH	29.11	11.46	
28.80	11.34	65TH	29.32	11.54	
29.10	11.46	70TH	29.55	11.63	
29.42	11.58	75TH	29.79	11.73	
29.78	11.73	80TH	30.07	11.84	
30.20	11.89	85TH	30.41	11.97	
30.72	12.09	90TH	30.84	12.14	
31.46	12.39	95TH	31.50	12.40	
31.92	12.57	97TH	31.95	12.58	
32.25	12.70	98TH	32.29	12.71	
32.73	12.89	99TH	32.85	12.93	

# WAIST HEIGHT, SITTING (NATURAL INDENTATION)

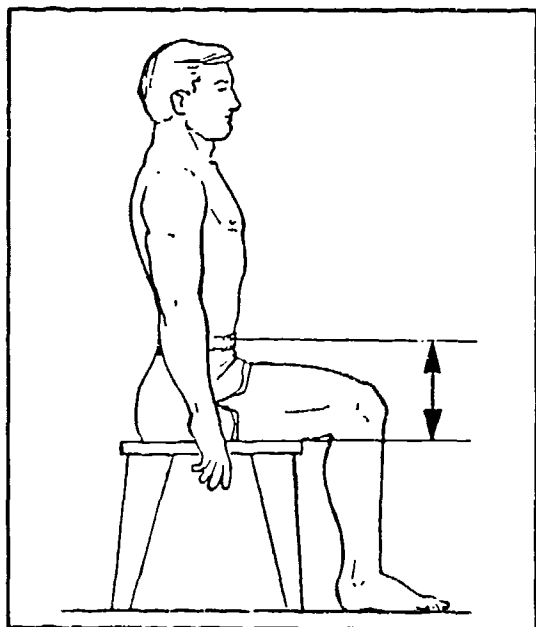
FEMALES			
<u>CM</u>		<u>INCHES</u>	
27.95	MEAN VALUE	11.01	
.05	SE(MEAN)	.02	
2.14	STD DEVIATION	.84	
.03	SE(STD DEV)	.00	
20.80	MINIMUM	8.19	
36.00	MAXIMUM	14.17	
SYMMETRY---VETA I = -.04			
KURTOSIS---VETA II = 2.99			
COEF. OF VARIATION = 7.6%			
NUMBER OF SUBJECTS = 2208			

MALES			
<u>CM</u>		<u>INCHES</u>	
28.73	MEAN VALUE	11.31	
.04	SE(MEAN)	.02	
1.66	STD DEVIATION	.65	
.03	SE(STD DEV)	.00	
23.10	MINIMUM	9.09	
34.70	MAXIMUM	13.66	
SYMMETRY---VETA I = .11			
KURTOSIS---VETA II = 3.32			
COEF. OF VARIATION = 5.8%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct	CumF	CumFPct		
1	.05	1	.05	20.75 -	21.25						
1	.05	2	.09	21.25 -	21.75						
13	.59	15	.68	21.75 -	22.25						
3	.14	18	.82	22.25 -	22.75						
19	.86	37	1.68	22.75 -	23.25	1	.06	1	.06		
21	.95	58	2.63	23.25 -	23.75	2	.11	3	.17		
32	1.45	90	4.08	23.75 -	24.25	4	.23	7	.39		
66	2.99	156	7.07	24.25 -	24.75	8	.45	15	.85		
69	3.13	225	10.19	24.75 -	25.25	19	1.07	34	1.92		
108	4.89	333	15.08	25.25 -	25.75	27	1.52	61	3.44		
136	6.16	469	21.24	25.75 -	26.25	51	2.87	112	6.31		
150	6.79	619	28.03	26.25 -	26.75	76	4.28	188	10.60		
189	8.56	808	36.59	26.75 -	27.25	131	7.38	319	17.98		
197	9.01	1007	45.61	27.25 -	27.75	166	9.36	485	27.34		
196	8.88	1203	54.48	27.75 -	28.25	213	12.01	698	39.35		
226	10.24	1429	64.72	28.25 -	28.75	221	12.46	919	51.80		
188	8.51	1617	73.23	28.75 -	29.25	202	11.39	1121	63.19		
155	7.02	1772	80.25	29.25 -	29.75	181	10.20	1302	73.39		
122	5.53	1894	85.78	29.75 -	30.25	156	8.79	1458	82.19		
103	4.66	1997	90.44	30.25 -	30.75	135	7.61	1593	89.80		
62	2.81	2059	93.25	30.75 -	31.25	75	4.23	1668	94.02		
62	2.81	2121	96.06	31.25 -	31.75	37	2.09	1705	96.11		
46	2.08	2167	98.14	31.75 -	32.25	31	1.75	1736	97.86		
21	.95	2188	99.09	32.25 -	32.75	18	1.01	1754	98.87		
10	.45	2198	99.55	32.75 -	33.25	6	.34	1760	99.21		
2	.09	2200	99.64	33.25 -	33.75	7	.39	1767	99.61		
4	.18	2204	99.82	33.75 -	34.25	4	.23	1771	99.83		
3	.14	2207	99.95	34.25 -	34.75	3	.17	1774	100.00		
0	.00	2207	99.95	34.75 -	35.25						
0	.00	2207	99.95	35.25 -	35.75						
1	.05	2208	100.00	35.75 -	36.25						

## (121) WAIST HEIGHT, SITTING (OMPHALION)

The vertical distance from a sitting surface to the center of the navel (omphalion) is measured with an anthropometer. The subject sits erect looking straight ahead. The knees are flexed 90 degrees. The measurement is made at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
19.02	7.49	1ST	19.94	7.85	
19.54	7.69	2ND	20.36	8.02	
19.85	7.81	3RD	20.62	8.12	
20.25	7.97	5TH	20.98	8.26	
20.83	8.20	10TH	21.52	8.47	
21.21	8.35	15TH	21.88	8.61	
21.51	8.47	20TH	22.17	8.73	
21.76	8.57	25TH	22.42	8.83	
21.98	8.65	30TH	22.65	8.92	
22.19	8.74	35TH	22.86	9.00	
22.39	8.81	40TH	23.06	9.08	
22.58	8.89	45TH	23.26	9.16	
22.76	8.96	50TH	23.45	9.23	
22.95	9.04	55TH	23.65	9.31	
23.14	9.11	60TH	23.85	9.39	
23.34	9.19	65TH	24.05	9.47	
23.55	9.27	70TH	24.27	9.56	
23.78	9.36	75TH	24.51	9.65	
24.04	9.46	80TH	24.77	9.75	
24.33	9.58	85TH	25.07	9.87	
24.70	9.73	90TH	25.44	10.02	
25.24	9.94	95TH	25.97	10.22	
25.58	10.07	97TH	26.29	10.35	
25.82	10.16	98TH	26.51	10.44	
26.17	10.30	99TH	26.83	10.56	

# WAIST HEIGHT, SITTING (OMPHALION)

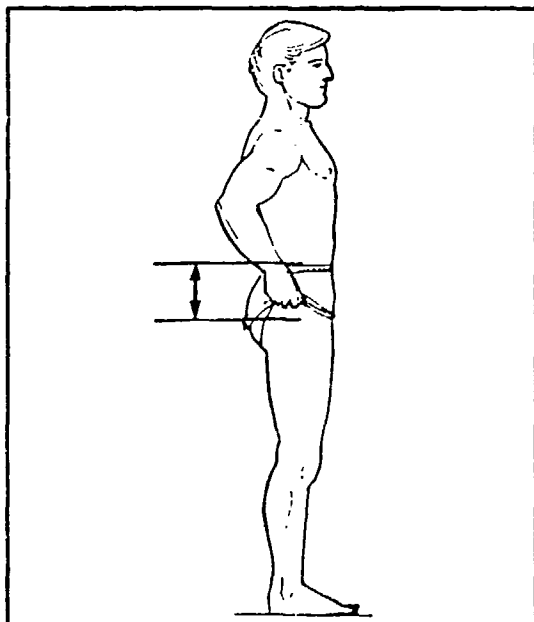
FEMALES			
CM		INCHES	
22.76	MEAN VALUE	8.96	
.03	SE(MEAN)	.00	
1.51	STD DEVIATION	.60	
.02	SE(STD DEV)	.00	
17.70	MINIMUM	6.97	
27.50	MAXIMUM	10.83	
SYMMETRY---VETA I = -.08			
KURTOSIS---VETA II = 2.99			
COEF. OF VARIATION = 6.7%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
23.46	MEAN VALUE	9.23	
.04	SE(MEAN)	.00	
1.52	STD DEVIATION	.60	
.03	SE(STD DEV)	.00	
17.40	MINIMUM	6.85	
28.50	MAXIMUM	11.22	
SYMMETRY---VETA I = -.07			
KURTOSIS---VETA II = 3.04			
COEF. OF VARIATION = 6.5%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
				17.35 -	17.60	1	.06	1	.06		
1	.05	1	.05	17.60 -	17.85	0	.00	1	.06		
2	.09	3	.14	17.85 -	18.10	0	.00	1	.06		
3	.14	6	.27	18.10 -	18.35	2	.11	3	.17		
3	.14	9	.41	18.35 -	18.60	0	.00	3	.17		
4	.18	13	.59	18.60 -	18.85	2	.11	5	.28		
9	.41	22	1.00	18.85 -	19.10	2	.11	7	.39		
12	.54	34	1.54	19.10 -	19.35	2	.11	9	.51		
14	.63	48	2.17	19.35 -	19.60	1	.06	10	.56		
21	.95	69	3.13	19.60 -	19.85	10	.56	20	1.13		
19	.86	88	3.99	19.85 -	20.10	1	.06	21	1.18		
26	1.18	114	5.16	20.10 -	20.35	9	.51	30	1.69		
39	1.77	153	6.93	20.35 -	20.60	14	.79	44	2.48		
75	3.40	228	10.33	20.60 -	20.85	35	1.97	79	4.45		
42	1.90	270	12.23	20.85 -	21.10	18	1.01	97	5.47		
115	5.21	385	17.44	21.10 -	21.35	55	3.10	152	8.57		
74	3.35	459	20.79	21.35 -	21.60	31	1.75	183	10.32		
133	6.02	592	26.81	21.60 -	21.85	79	4.45	262	14.77		
113	5.12	705	31.93	21.85 -	22.10	55	3.10	317	17.87		
151	6.84	856	38.77	22.10 -	22.35	104	5.86	421	23.73		
147	6.66	1003	45.43	22.35 -	22.60	74	4.17	495	27.90		
165	7.47	1168	52.90	22.60 -	22.85	122	6.88	617	34.78		
93	4.21	1261	57.11	22.85 -	23.10	88	4.96	705	39.74		
172	7.79	1433	64.90	23.10 -	23.35	133	7.50	838	47.24		
114	5.16	1547	70.06	23.35 -	23.60	91	5.13	929	52.37		
137	6.20	1684	76.27	23.60 -	23.85	134	7.55	1063	59.92		
86	3.89	1770	80.16	23.85 -	24.10	89	5.02	1152	64.94		
102	4.62	1872	84.78	24.10 -	24.35	122	6.88	1274	71.82		
70	3.17	1942	87.95	24.35 -	24.60	78	4.40	1352	76.21		
83	3.76	2025	91.71	24.60 -	24.85	87	4.90	1439	81.12		
42	1.90	2067	93.61	24.85 -	25.10	70	3.95	1509	85.06		
43	1.95	2110	95.56	25.10 -	25.35	72	4.06	1581	89.12		
30	1.36	2140	96.92	25.35 -	25.60	36	2.03	1617	91.15		
30	1.36	2170	98.28	25.60 -	25.85	56	3.16	1673	94.31		
7	.32	2177	98.60	25.85 -	26.10	23	1.30	1696	95.60		
18	.82	2195	99.41	26.10 -	26.35	31	1.75	1727	97.35		
2	.09	2197	99.50	26.35 -	26.60	17	.96	1744	98.31		
6	.27	2203	99.77	26.60 -	26.85	12	.68	1756	98.99		
3	.14	2206	99.91	26.85 -	27.10	5	.28	1761	99.27		
1	.05	2207	99.95	27.10 -	27.35	7	.39	1768	99.66		
1	.05	2208	100.00	27.35 -	27.60	2	.11	1770	99.77		
				27.60 -	27.85	0	.00	1770	99.77		
				27.85 -	28.10	1	.06	1771	99.83		
				28.10 -	28.35	2	.11	1773	99.94		
				28.35 -	28.60	1	.06	1774	100.00		

## (122) WAIST-HIP LENGTH

The surface distance between the right waist (omphalion) landmark and the right lateral-buttock-point landmark on the side of the hip is measured with a tape. The subject stands erect looking straight ahead. The heels are together with the weight distributed equally on both feet.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
10.08	3.97	1ST	12.68	4.99
10.54	4.15	2ND	13.30	5.24
10.86	4.28	3RD	13.69	5.39
11.32	4.46	5TH	14.22	5.60
12.07	4.75	10TH	15.01	5.91
12.60	4.96	15TH	15.54	6.12
13.02	5.13	20TH	15.96	6.28
13.39	5.27	25TH	16.32	6.42
13.72	5.40	30TH	16.63	6.55
14.02	5.52	35TH	16.92	6.66
14.31	5.63	40TH	17.20	6.77
14.59	5.74	45TH	17.46	6.87
14.86	5.85	50TH	17.72	6.98
15.13	5.96	55TH	17.98	7.08
15.40	6.06	60TH	18.24	7.18
15.68	6.17	65TH	18.51	7.29
15.97	6.29	70TH	18.78	7.40
16.28	6.41	75TH	19.08	7.51
16.63	6.55	80TH	19.42	7.64
17.03	6.71	85TH	19.80	7.79
17.54	6.91	90TH	20.27	7.98
18.30	7.21	95TH	20.96	8.25
18.81	7.40	97TH	21.39	8.42
19.19	7.55	98TH	21.70	8.54
19.81	7.80	99TH	22.18	8.73

# WAIST-HIP LENGTH

## FEMALES

<u>CM</u>		<u>INCHES</u>
14.84	MEAN VALUE	5.84
.05	SE (MEAN)	.02
2.13	STD DEVIATION	.84
.03	SE (STD DEV)	.00
7.70	MINIMUM	3.03
21.60	MAXIMUM	8.50

SYMMETRY---VETA I = -.02  
 KURTOSIS---VETA II = 2.92  
 COEF. OF VARIATION = 14.3%  
 NUMBER OF SUBJECTS = 2208

## MALES

<u>CM</u>		<u>INCHES</u>
17.68	MEAN VALUE	6.96
.05	SE (MEAN)	.02
2.04	STD DEVIATION	.80
.03	SE (STD DEV)	.00
12.00	MINIMUM	4.72
24.10	MAXIMUM	9.49

SYMMETRY---VETA I = -.09  
 KURTOSIS---VETA II = 2.89  
 COEF. OF VARIATION = 11.6%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
2	.09	2	.09
2	.09	4	.18
1	.05	5	.23
6	.27	11	.50
4	.18	15	.68
15	.68	30	1.36
26	1.12	56	2.54
42	1.90	98	4.44
70	3.17	168	7.61
93	4.21	261	11.82
108	4.89	369	16.71
139	6.30	508	23.01
159	7.20	667	30.21
205	9.28	872	39.49
204	9.24	1076	48.73
195	8.83	1271	57.56
184	8.33	1455	65.90
183	8.29	1638	74.18
159	7.20	1797	81.39
126	5.71	1923	87.09
100	4.53	2023	91.62
75	3.40	2098	95.02
43	1.95	2141	96.97
29	1.31	2170	98.28
13	.59	2183	98.87
12	.54	2195	99.41
8	.36	2203	99.77
3	.14	2206	99.91
2	.09	2208	100.00

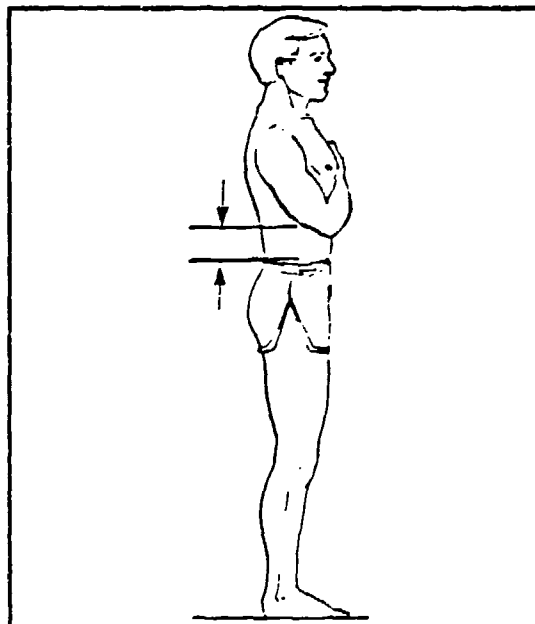
<u>CENTIMETERS</u>
7.25 - 7.75
7.75 - 8.25
8.25 - 8.75
8.75 - 9.25
9.25 - 9.75
9.75 - 10.25
10.25 - 10.75
10.75 - 11.25
11.25 - 11.75
11.75 - 12.25
12.25 - 12.75
12.75 - 13.25
13.25 - 13.75
13.75 - 14.25
14.25 - 14.75
14.75 - 15.25
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19.25 - 19.75
19.75 - 20.25
20.25 - 20.75
20.75 - 21.25
21.25 - 21.75
21.75 - 22.25
22.25 - 22.75
22.75 - 23.25
23.25 - 23.75
23.75 - 24.25

### MALES

F	FPct	CumF	CumFPct
9	.51	9	.51
9	.51	18	1.01
15	.85	33	1.86
27	1.52	60	3.38
28	1.58	88	4.96
54	3.04	142	8.00
81	4.57	223	12.57
81	4.57	304	17.14
130	7.33	434	24.46
131	7.38	565	31.85
159	8.96	724	40.81
171	9.64	895	50.45
180	10.15	1075	60.60
164	9.24	1239	69.84
157	8.85	1396	78.69
92	5.19	1488	83.88
86	4.85	1574	88.73
85	4.79	1659	93.52
58	3.27	1717	96.79
24	1.35	1741	98.14
20	1.13	1761	99.27
3	.17	1764	99.44
6	.34	1770	99.77
0	.00	1770	99.77
4	.23	1774	100.00

# (123) WAIST (NATURAL INDENTATION) - WAIST (OMPHALION) LENGTH

The surface distance between the right waist (natural indentation) and right waist (omphalion) landmarks is measured with a tape. The subject stands erect looking straight ahead. The heels are together with the weight distributed equally on both feet.



## THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
2.57	1.01	1ST	3.04	1.20	
3.28	1.29	2ND	3.48	1.37	
3.69	1.45	3RD	3.76	1.48	
4.21	1.66	5TH	4.14	1.63	
4.96	1.95	10TH	4.72	1.86	
5.44	2.14	15TH	5.11	2.01	
5.82	2.29	20TH	5.43	2.14	
6.14	2.42	25TH	5.70	2.25	
6.43	2.53	30TH	5.95	2.34	
6.70	2.64	35TH	6.19	2.44	
6.96	2.74	40TH	6.41	2.53	
7.21	2.84	45TH	6.64	2.61	
7.47	2.94	50TH	6.86	2.70	
7.72	3.04	55TH	7.09	2.79	
7.99	3.15	60TH	7.32	2.88	
8.27	3.26	65TH	7.57	2.98	
8.58	3.38	70TH	7.83	3.08	
8.91	3.51	75TH	8.12	3.20	
9.30	3.66	80TH	8.46	3.33	
9.75	3.84	85TH	8.86	3.49	
10.35	4.07	90TH	9.38	3.69	
11.26	4.43	95TH	10.20	4.02	
11.07	4.67	97TH	10.76	4.24	
12.32	4.85	98TH	11.19	4.40	
13.02	5.13	99TH	11.88	4.68	

# WAIST (NATURAL INDENTATION)-WAIST (OMPHALION) LENGTH

FEMALES			
<u>CM</u>		<u>INCHES</u>	
7.57	MEAN VALUE	2.93	
.05	SE (MEAN)	.02	
2.13	STD DEVIATION	.84	
.03	SE (STD DEV)	.00	
.70	MINIMUM	.28	
15.50	MAXIMUM	6.10	
SYMMETRY---VETA I = .23			
KURTOSIS---VETA II = 3.35			
COEF. OF VARIATION = 28.2%			
NUMBER OF SUBJECTS = 2208			

MALES			
<u>CM</u>		<u>INCHES</u>	
6.98	MEAN VALUE	2.75	
.04	SE (MEAN)	.02	
1.84	STD DEVIATION	.72	
.03	SE (STD DEV)	.00	
1.60	MINIMUM	.63	
13.30	MAXIMUM	5.24	
SYMMETRY---VETA I = .34			
KURTOSIS---VETA II = 3.17			
COEF. OF VARIATION = 26.4%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct	CumF	CumFPct		
1	.05	1	.05	.25 -	.75						
1	.05	2	.09	.75 -	1.25						
2	.09	4	.18	1.25 -	1.75	1	.06	1	.06		
11	.50	15	.68	1.75 -	2.25	3	.17	4	.23		
10	.45	25	1.13	2.25 -	2.75	5	.28	9	.51		
21	.95	46	2.08	2.75 -	3.25	18	1.01	27	1.52		
28	1.27	74	3.35	3.25 -	3.75	26	1.47	53	2.99		
34	1.54	108	4.89	3.75 -	4.25	46	2.59	99	5.58		
70	3.17	178	8.06	4.25 -	4.75	71	4.00	170	9.58		
103	4.66	281	12.73	4.75 -	5.25	125	7.05	295	16.63		
133	6.02	414	18.75	5.25 -	5.75	179	10.09	474	26.72		
175	7.93	589	26.68	5.75 -	6.25	172	9.70	646	36.41		
183	8.29	772	34.96	6.25 -	6.75	201	11.33	847	47.75		
264	11.96	1036	46.92	6.75 -	7.25	193	10.88	1040	58.62		
182	8.24	1218	55.16	7.25 -	7.75	190	10.71	1230	69.33		
223	10.10	1441	65.26	7.75 -	8.25	135	7.61	1365	76.94		
163	7.38	1604	72.64	8.25 -	8.75	116	6.54	1481	83.48		
162	7.34	1766	79.98	8.75 -	9.25	95	5.36	1576	88.84		
120	5.43	1886	85.42	9.25 -	9.75	55	3.10	1631	91.94		
97	4.39	1983	89.81	9.75 -	10.25	60	3.38	1691	95.32		
67	3.03	2050	92.84	10.25 -	10.75	33	1.86	1724	97.18		
42	1.90	2092	94.75	10.75 -	11.25	17	.96	1741	98.14		
36	1.63	2128	96.38	11.25 -	11.75	13	.73	1754	98.87		
31	1.40	2159	97.78	11.75 -	12.25	10	.56	1764	99.44		
20	.91	2179	98.69	12.25 -	12.75	3	.17	1767	99.61		
13	.59	2192	99.28	12.75 -	13.25	6	.34	1773	99.94		
5	.23	2197	99.50	13.25 -	13.75	1	.06	1774	100.00		
3	.14	2200	99.64	13.75 -	14.25						
5	.23	2205	99.86	14.25 -	14.75						
1	.05	2206	99.91	14.75 -	15.25						
2	.09	2208	100.00	15.25 -	15.75						



## (124) WEIGHT

The weight of the subject is taken to the nearest tenth of a kilogram. The subject stands on the platform of a scale.



### THE PERCENTILES

FEMALES			MALES	
KG	LB		KG	LB
45.24	99.73	1ST	55.27	121.86
47.02	103.66	2ND	57.83	127.50
48.13	106.11	3RD	59.43	131.03
49.64	109.43	5TH	61.59	135.78
51.98	114.60	10TH	64.93	143.14
53.61	118.19	15TH	67.22	148.20
54.94	121.12	20TH	69.08	152.28
56.12	123.72	25TH	70.71	155.89
57.20	126.12	30TH	72.21	159.19
58.24	128.39	35TH	73.61	162.29
59.24	130.60	40TH	74.98	165.30
60.24	132.80	45TH	76.33	168.27
61.25	135.03	50TH	77.69	171.27
62.29	137.32	55TH	79.07	174.33
63.37	139.70	60TH	80.50	177.48
64.51	142.22	65TH	82.02	180.82
65.75	144.95	70TH	83.64	184.40
67.13	147.99	75TH	85.45	188.38
68.72	151.50	80TH	87.51	192.94
70.62	155.68	85TH	89.96	198.34
73.11	161.19	90TH	93.16	205.39
76.98	169.72	95TH	98.07	216.21
79.59	175.48	97TH	101.35	223.44
81.56	179.81	98TH	103.80	228.85
84.70	186.74	99TH	107.71	237.46

# WEIGHT

## FEMALES

KG		POUNDS
62.01	MEAN VALUE	136.72
.18	SE (MEAN)	.39
8.35	STD DEVIATION	18.41
.13	SE (STD DEV)	.28
41.30	MINIMUM	91.05
96.70	MAXIMUM	213.19

SYMMETRY---VETA I = .53  
 KURTOSIS---VETA II = 3.51  
 COEF. OF VARIATION = 13.5%  
 NUMBER OF SUBJECTS = 2208

## MALES

KG		POUNDS
78.49	MEAN VALUE	173.03
.26	SE (MEAN)	.58
11.10	STD DEVIATION	24.48
.19	SE (STD DEV)	.41
47.60	MINIMUM	104.94
127.80	MAXIMUM	281.75

SYMMETRY---VETA I = .43  
 KURTOSIS---VETA II = 3.40  
 COEF. OF VARIATION = 14.1%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

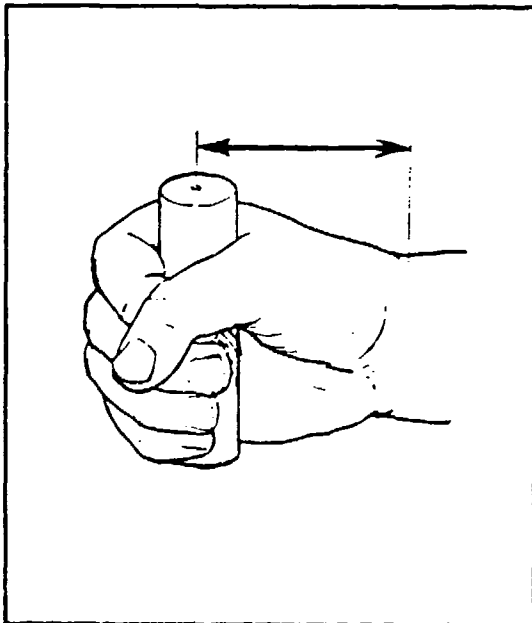
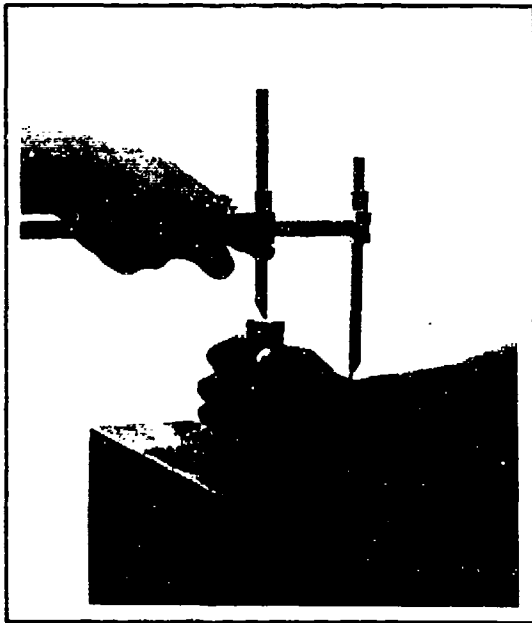
F	FPct	CumF	CumFPct
5	.23	5	.23
9	.41	14	.63
22	1.00	36	1.63
43	1.95	79	3.58
61	2.76	140	6.34
122	5.53	262	11.87
146	6.61	408	18.48
180	8.15	588	26.63
199	9.01	787	35.64
231	10.46	1018	46.11
226	10.24	1244	56.34
207	9.38	1451	65.72
178	8.06	1629	73.78
131	5.93	1760	79.71
117	5.30	1877	85.01
93	4.21	1970	89.22
70	3.17	2040	92.39
44	1.99	2084	94.38
40	1.81	2124	96.20
26	1.18	2150	97.37
20	.91	2170	98.28
16	.72	2186	99.00
7	.32	2193	99.32
5	.23	2198	99.55
2	.09	2200	99.64
3	.14	2203	99.77
1	.05	2204	99.82
3	.14	2207	99.95
1	.05	2208	100.00

### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
2	.11	3	.17
3	.17	6	.34
7	.39	13	.73
12	.68	25	1.41
16	.90	41	2.31
26	1.47	67	3.78
39	2.20	106	5.98
56	3.16	162	9.13
90	5.07	252	14.21
72	4.06	324	18.26
100	5.64	424	23.90
135	7.61	559	31.51
127	7.16	686	38.67
125	7.05	811	45.72
130	7.33	941	53.04
112	6.31	1053	59.36
122	6.88	1175	66.23
113	6.37	1288	72.60
100	5.64	1388	78.24
78	4.40	1466	82.64
73	4.11	1539	86.75
54	3.04	1593	89.80
40	2.25	1633	92.05
28	1.58	1661	93.63
23	1.30	1684	94.93
26	1.47	1710	96.39
21	1.18	1731	97.58
14	.79	1745	98.37
8	.45	1753	98.82
8	.45	1761	99.27
3	.17	1764	99.44
3	.17	1767	99.61
2	.11	1769	99.72
0	.00	1769	99.72
2	.11	1771	99.83
0	.00	1771	99.83
1	.06	1772	99.89
1	.06	1773	99.94
0	.00	1773	99.94
1	.06	1774	100.00

## (125) WRIST-CENTER OF GRIP LENGTH

The horizontal distance between the stylium landmark on the right wrist and the center of a dowel (1-1/4" diameter) gripped in the right hand is measured with a Poech caliper. The subject sits grasping a dowel in the right hand. The base of the dowel is flush with the bottom of the fist. The subject puts the bottom of the fist on a flat surface in such a way that the base of the dowel rests on the surface. The fist is in line with the long axis of the forearm.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
5.57	2.19	1ST	5.99	2.36	
5.69	2.24	2ND	6.08	2.40	
5.77	2.27	3RD	6.15	2.42	
5.87	2.31	5TH	6.23	2.45	
6.02	2.37	10TH	6.37	2.51	
6.12	2.41	15TH	6.47	2.55	
6.21	2.44	20TH	6.55	2.58	
6.28	2.47	25TH	6.62	2.61	
6.35	2.50	30TH	6.69	2.63	
6.41	2.52	35TH	6.75	2.66	
6.47	2.55	40TH	6.82	2.68	
6.54	2.57	45TH	6.88	2.71	
6.60	2.60	50TH	6.94	2.73	
6.66	2.62	55TH	7.01	2.76	
6.73	2.65	60TH	7.07	2.78	
6.80	2.68	65TH	7.14	2.81	
6.87	2.70	70TH	7.22	2.84	
6.95	2.74	75TH	7.30	2.87	
7.04	2.77	80TH	7.39	2.91	
7.15	2.81	85TH	7.50	2.95	
7.29	2.87	90TH	7.63	3.00	
7.49	2.95	95TH	7.83	3.08	
7.62	3.00	97TH	7.95	3.13	
7.71	3.04	98TH	8.04	3.16	
7.85	3.09	99TH	8.16	3.21	

# WRIST-CENTER OF GRIP LENGTH

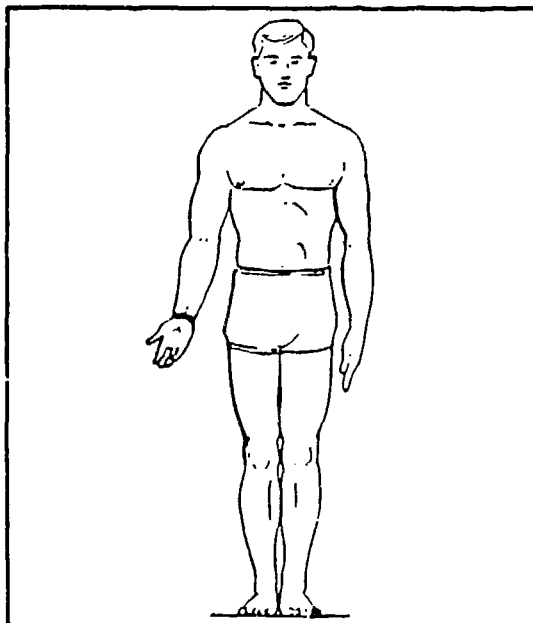
FEMALES			
CM		INCHES	
6.63	MEAN VALUE	2.61	
.00	SE (MEAN)	.00	
.49	STD DEVIATION	.19	
.00	SE (STD DEV)	.00	
5.20	MINIMUM	2.05	
8.30	MAXIMUM	3.27	
SYMMETRY---VETA I = .26			
KURTOSIS---VETA II = 2.90			
COEF. OF VARIATION = 7.4%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
6.97	MEAN VALUE	2.75	
.00	SE (MEAN)	.00	
.49	STD DEVIATION	.19	
.00	SE (STD DEV)	.00	
5.70	MINIMUM	2.24	
8.70	MAXIMUM	3.43	
SYMMETRY---VETA I = .33			
KURTOSIS---VETA II = 2.87			
COEF. OF VARIATION = 7.0%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
2	.09	2	.09	5.15	- 5.25						
2	.09	4	.18	5.25	- 5.35						
2	.09	6	.27	5.35	- 5.45						
10	.45	16	.72	5.45	- 5.55						
20	.91	36	1.63	5.55	- 5.65						
26	1.18	62	2.81	5.65	- 5.75	1	.06	1	.06		
44	1.99	106	4.80	5.75	- 5.85	2	.11	3	.17		
51	2.31	157	7.11	5.85	- 5.95	5	.28	8	.45		
91	4.12	248	11.23	5.95	- 6.05	21	1.18	29	1.63		
97	4.39	345	15.63	6.05	- 6.15	24	1.35	53	2.99		
140	6.34	485	21.97	6.15	- 6.25	49	2.76	102	5.75		
182	8.24	667	30.21	6.25	- 6.35	72	4.06	174	9.81		
182	8.24	849	38.45	6.35	- 6.45	75	4.23	249	14.04		
185	8.38	1034	46.83	6.45	- 6.55	92	5.19	341	19.22		
164	7.43	1198	54.26	6.55	- 6.65	124	6.99	465	26.21		
178	8.06	1376	62.32	6.65	- 6.75	143	8.06	608	34.27		
148	6.70	1524	69.02	6.75	- 6.85	151	8.51	759	42.78		
121	5.48	1645	74.50	6.85	- 6.95	158	8.91	917	51.69		
135	6.11	1780	80.62	6.95	- 7.05	134	7.55	1051	59.24		
97	4.39	1877	85.01	7.05	- 7.15	115	6.48	1166	65.73		
70	3.17	1947	88.18	7.15	- 7.25	109	6.14	1275	71.87		
76	3.44	2023	91.62	7.25	- 7.35	119	6.71	1394	78.58		
57	2.58	2080	94.20	7.35	- 7.45	85	4.79	1479	83.37		
41	1.86	2121	96.06	7.45	- 7.55	60	3.38	1539	86.75		
35	1.59	2156	97.64	7.55	- 7.65	55	3.10	1594	89.85		
14	.63	2170	98.28	7.65	- 7.75	51	2.87	1645	92.73		
16	.72	2186	99.00	7.75	- 7.85	51	2.87	1696	95.60		
15	.68	2201	99.68	7.85	- 7.95	25	1.41	1721	97.01		
0	.00	2201	99.68	7.95	- 8.05	25	1.41	1746	98.42		
5	.23	2206	99.91	8.05	- 8.15	9	.51	1755	98.93		
0	.00	2206	99.91	8.15	- 8.25	6	.34	1761	99.27		
2	.09	2208	100.00	8.25	- 8.35	4	.23	1765	99.49		
				8.35	- 8.45	4	.23	1769	99.72		
				8.45	- 8.55	2	.11	1771	99.83		
				8.55	- 8.65	2	.11	1773	99.94		
				8.65	- 8.75	1	.06	1774	100.00		

## (126) WRIST CIRCUMFERENCE

The circumference of the wrist perpendicular to the long axis of the forearm is measured with a tape passing over the stylium landmark on the wrist. The subject extends the right arm forward with the palm up.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
13.61	5.36	1ST	15.59	6.14
13.78	5.43	2ND	15.81	6.23
13.89	5.47	3RD	15.95	6.28
14.03	5.52	5TH	16.12	6.35
14.26	5.61	10TH	16.31	6.46
14.41	5.67	15TH	16.50	6.53
14.54	5.72	20TH	16.73	6.59
14.65	5.77	25TH	16.86	6.64
14.74	5.80	30TH	16.98	6.68
14.84	5.84	35TH	17.09	6.73
14.92	5.88	40TH	17.19	6.77
15.01	5.91	45TH	17.29	6.81
15.10	5.94	50TH	17.40	6.85
15.18	5.98	55TH	17.50	6.89
15.27	6.01	60TH	17.61	6.93
15.37	6.05	65TH	17.72	6.98
15.46	6.09	70TH	17.84	7.02
15.57	6.13	75TH	17.97	7.07
15.69	6.18	80TH	18.12	7.13
15.84	6.23	85TH	18.29	7.20
16.02	6.31	90TH	18.51	7.29
16.29	6.42	95TH	18.84	7.42
16.47	6.49	97TH	19.05	7.50
16.61	6.54	98TH	19.21	7.56
16.82	6.62	99TH	19.44	7.66

# WRIST CIRCUMFERENCE

## FEMALES

<u>CM</u>		<u>INCHES</u>
15.12	MEAN VALUE	5.95
.00	SE (MEAN)	.00
.69	STD DEVIATION	.27
.00	SE (STD DEV)	.00
12.90	MINIMUM	5.08
17.40	MAXIMUM	6.85

SYMMETRY---VETA I = .20  
 KURTOSIS---VETA II = 3.04  
 COEF. OF VARIATION = 4.6%  
 NUMBER OF SUBJECTS = 2208

## MALES

<u>CM</u>		<u>INCHES</u>
17.42	MEAN VALUE	6.86
.02	SE (MEAN)	.00
.83	STD DEVIATION	.33
.00	SE (STD DEV)	.00
14.30	MINIMUM	5.63
20.40	MAXIMUM	8.03

SYMMETRY---VETA I = .13  
 KURTOSIS---VETA II = 3.24  
 COEF. OF VARIATION = 4.8%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
1	.05	1	.05
2	.09	3	.14
3	.14	6	.27
9	.41	15	.68
21	.95	36	1.63
42	1.90	78	3.53
67	3.03	145	6.57
127	5.75	272	12.32
187	8.47	459	20.79
204	9.24	663	30.03
263	11.91	926	41.94
226	10.24	1152	52.17
257	11.64	1409	63.81
236	10.69	1645	74.50
170	7.70	1815	82.20
123	5.57	1938	87.77
99	4.48	2037	92.26
78	3.53	2115	95.79
43	1.95	2158	97.74
19	.86	2177	98.60
17	.77	2194	99.37
6	.27	2200	99.64
3	.14	2203	99.77
5	.23	2208	100.00

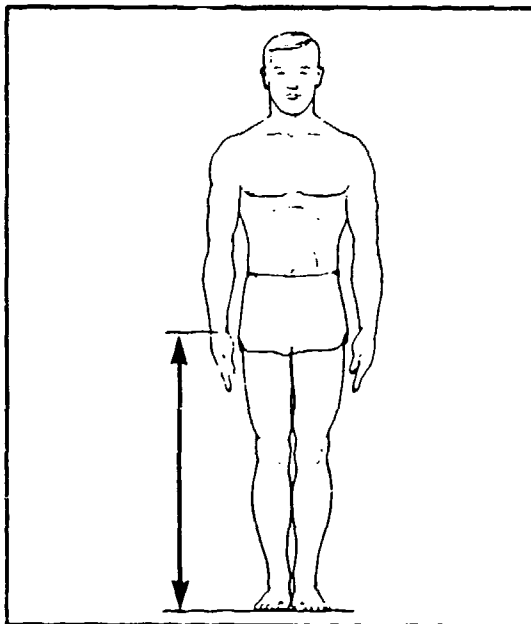
<u>CENTIMETERS</u>
12.75 - 12.95
12.95 - 13.15
13.15 - 13.35
13.35 - 13.55
13.55 - 13.75
13.75 - 13.95
13.95 - 14.15
14.15 - 14.35
14.35 - 14.55
14.55 - 14.75
14.75 - 14.95
14.95 - 15.15
15.15 - 15.35
15.35 - 15.55
15.55 - 15.75
15.75 - 15.95
15.95 - 16.15
16.15 - 16.35
16.35 - 16.55
16.55 - 16.75
16.75 - 16.95
16.95 - 17.15
17.15 - 17.35
17.35 - 17.55
17.55 - 17.75
17.75 - 17.95
17.95 - 18.15
18.15 - 18.35
18.35 - 18.55
18.55 - 18.75
18.75 - 18.95
18.95 - 19.15
19.15 - 19.35
19.35 - 19.55
19.55 - 19.75
19.75 - 19.95
19.95 - 20.15
20.15 - 20.35
20.35 - 20.55

### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
1	.06	2	.11
3	.17	5	.28
0	.00	5	.28
1	.06	6	.34
3	.17	9	.51
6	.34	15	.85
15	.85	30	1.69
21	1.18	51	2.87
34	1.92	85	4.79
79	4.45	164	9.24
100	5.64	264	14.88
101	5.69	365	20.57
146	8.23	511	28.80
139	7.84	650	36.64
203	11.44	853	48.08
174	9.81	1027	57.89
145	8.17	1172	66.07
146	8.23	1318	74.30
120	6.76	1438	81.06
115	6.48	1553	87.54
60	3.38	1613	90.92
50	2.82	1663	93.74
41	2.31	1704	96.05
30	1.69	1734	97.75
16	.90	1750	98.65
14	.79	1764	99.44
3	.17	1767	99.61
3	.17	1770	99.77
1	.06	1771	99.83
1	.06	1772	99.89
2	.11	1774	100.00

## (127) WRIST HEIGHT

The vertical distance between a standing surface and the stylium landmark on the right wrist is measured with an anthropometer. The subject stands erect looking straight ahead with the heels together and the weight distributed equally on both feet. The shoulders are relaxed and the arms are extended downwards with the elbow, wrist, and fingers held rigidly straight. The arms lightly touch the sides. The measurement is taken at the maximum point of quiet respiration.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
70.80	27.87	1ST	74.89	29.49
71.53	28.16	2ND	76.07	29.95
72.04	28.36	3RD	76.81	30.24
72.79	28.66	5TH	77.79	30.63
74.04	29.15	10TH	79.30	31.22
74.94	29.50	15TH	80.32	31.62
75.67	29.79	20TH	81.12	31.94
76.31	30.04	25TH	81.82	32.21
76.89	30.27	30TH	82.45	32.46
77.43	30.48	35TH	83.02	32.69
77.95	30.69	40TH	83.58	32.90
78.45	30.89	45TH	84.11	33.11
78.95	31.08	50TH	84.64	33.32
79.45	31.28	55TH	85.17	33.53
79.95	31.48	60TH	85.71	33.74
80.48	31.68	65TH	86.27	33.96
81.03	31.90	70TH	86.86	34.20
81.63	32.14	75TH	87.49	34.45
82.29	32.40	80TH	88.20	34.73
83.07	32.70	85TH	89.02	35.05
84.05	33.09	90TH	90.04	35.45
85.51	33.67	95TH	91.52	36.03
86.47	34.04	97TH	92.44	36.40
87.19	34.33	98TH	93.10	36.65
88.34	34.78	99TH	94.09	37.04

# WRIST HEIGHT

FEMALES			
CM		INCHES	
79.03	MEAN VALUE	31.11	
.08	SE(MEAN)	.03	
3.86	STD DEVIATION	1.52	
.06	SE(STD DEV)	.02	
67.30	MINIMUM	26.50	
93.90	MAXIMUM	36.97	
SYMMETRY---VETA I = .13			
KURTOSIS---VETA II = 2.92			
COEF. OF VARIATION = 4.9%			
NUMBER OF SUBJECTS = 2208			

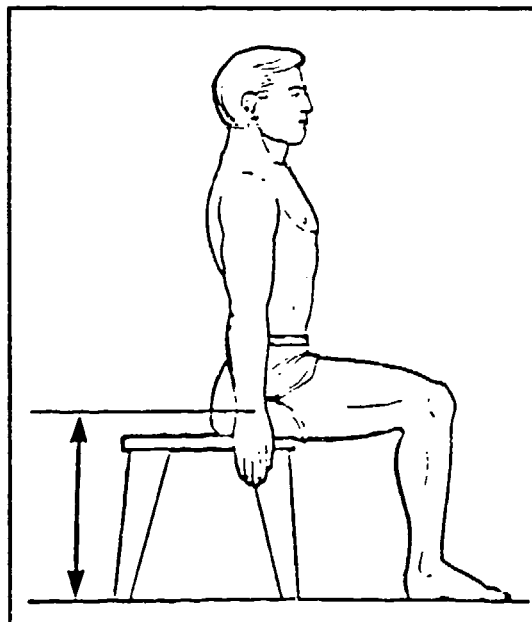
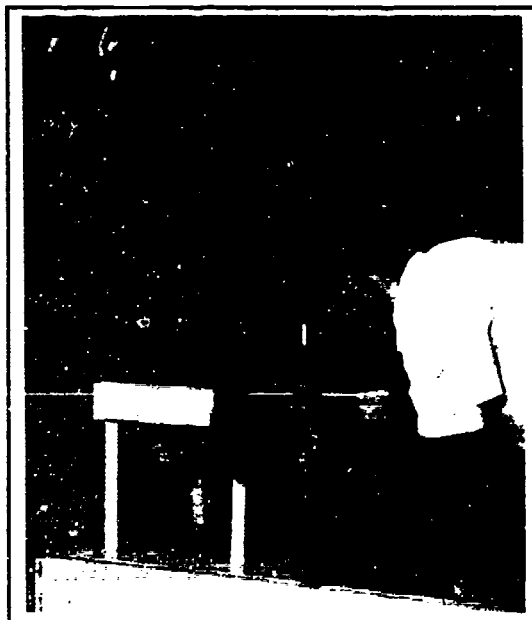
MALES			
CM		INCHES	
84.65	MEAN VALUE	33.33	
.10	SE(MEAN)	.04	
4.15	STD DEVIATION	1.63	
.07	SE(STD DEV)	.03	
70.20	MINIMUM	27.64	
100.50	MAXIMUM	39.57	
SYMMETRY---VETA I = .02			
KURTOSIS---VETA II = 3.05			
COEF. OF VARIATION = 4.9%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	66.55 - 67.55							
6	.27	7	.32	67.55 - 68.55							
3	.14	10	.45	68.55 - 69.55							
9	.41	19	.86	69.55 - 70.55		1	.06	1	.06		
23	1.04	42	1.90	70.55 - 71.55		1	.06	2	.11		
58	2.63	100	4.53	71.55 - 72.55		0	.00	2	.11		
58	2.63	158	7.16	72.55 - 73.55		3	.17	5	.28		
104	4.71	262	11.87	73.55 - 74.55		10	.56	15	.85		
161	7.29	423	19.16	74.55 - 75.55		11	.62	26	1.47		
179	8.11	602	27.26	75.55 - 76.55		16	.90	42	2.37		
207	9.38	809	36.64	76.55 - 77.55		40	2.25	82	4.62		
222	10.05	1031	46.69	77.55 - 78.55		44	2.48	126	7.10		
196	8.88	1227	55.57	78.55 - 79.55		62	3.49	188	10.60		
234	10.60	1461	66.17	79.55 - 80.55		98	5.52	286	16.12		
191	8.65	1652	74.82	80.55 - 81.55		108	6.09	394	22.21		
145	6.57	1797	81.39	81.55 - 82.55		161	9.08	555	31.29		
133	6.02	1930	87.41	82.55 - 83.55		153	8.62	708	39.91		
101	4.57	2031	91.98	83.55 - 84.55		165	9.30	873	49.21		
75	3.40	2106	95.38	84.55 - 85.55		168	9.47	1041	58.68		
41	1.86	2147	97.24	85.55 - 86.55		154	8.68	1195	67.36		
25	1.13	2172	98.37	86.55 - 87.55		143	8.06	1338	75.42		
18	.82	2190	99.18	87.55 - 88.55		124	6.99	1462	82.41		
12	.54	2202	99.73	88.55 - 89.55		109	6.14	1571	88.56		
2	.09	2204	99.82	89.55 - 90.55		70	3.95	1641	92.50		
2	.09	2206	99.91	90.55 - 91.55		45	2.54	1686	95.04		
0	.00	2206	99.91	91.55 - 92.55		34	1.92	1720	96.96		
1	.05	2207	99.95	92.55 - 93.55		29	1.63	1749	98.59		
1	.05	2208	100.00	93.55 - 94.55		12	.68	1761	99.27		
				94.55 - 95.55		6	.34	1767	99.61		
				95.55 - 96.55		2	.11	1769	99.72		
				96.55 - 97.55		2	.11	1771	99.83		
				97.55 - 98.55		1	.06	1772	99.89		
				98.55 - 99.55		1	.06	1773	99.94		
				99.55 - 100.55		1	.06	1774	100.00		



## (128) WRIST HEIGHT, SITTING

The vertical distance between the floor and the stylium landmark on the right wrist of a seated subject is measured with an anthropometer. The subject sits erect with the trochanter landmark on the hip lined up with a marker placed about 7 cm from the front edge of the seat. The subject looks straight ahead. The shoulders are relaxed and the arms are extended downwards with the elbow, wrist, and fingers held rigidly straight. The arms lightly touch the sides. The measurement is taken at the maximum point of quiet respiration with the subject holding his/her breath. **Note:** The height of the seat used in this measurement was 45.5 cm.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
39.46	15.53	1ST	37.13	14.62
40.09	15.78	2ND	38.19	15.04
40.57	15.97	3RD	38.88	15.31
41.29	16.25	5TH	39.84	15.68
42.52	16.74	10TH	41.32	16.27
43.40	17.09	15TH	42.30	16.66
44.12	17.37	20TH	43.07	16.96
44.75	17.62	25TH	43.72	17.21
45.31	17.84	30TH	44.29	17.44
45.83	18.04	35TH	44.81	17.64
46.32	18.24	40TH	45.29	17.83
46.79	18.42	45TH	45.74	18.01
47.25	18.60	50TH	46.19	18.18
47.71	18.78	55TH	46.62	18.35
48.16	18.96	60TH	47.05	18.52
48.62	19.14	65TH	47.49	18.70
49.10	19.33	70TH	47.94	18.88
49.61	19.53	75TH	48.43	19.07
50.16	19.75	80TH	48.96	19.28
50.79	19.99	85TH	49.57	19.52
51.56	20.30	90TH	50.34	19.82
52.66	20.73	95TH	51.50	20.27
53.37	21.01	97TH	52.27	20.58
53.89	21.22	98TH	52.87	20.82
54.72	21.54	99TH	53.88	21.21

# WRIST HEIGHT, SITTING

## FEMALES

CM		INCHES
47.13	MEAN VALUE	18.55
.07	SE (MEAN)	.03
3.44	STD DEVIATION	1.36
.05	SE (STD DEV)	.02
35.50	MINIMUM	13.98
57.20	MAXIMUM	22.52
SYMMETRY---VETA I = -.11		
KURTOSIS---VETA II = 2.71		
COEF. OF VARIATION = 7.3%		
NUMBER OF SUBJECTS = 2208		

## MALES

CM		INCHES
45.98	MEAN VALUE	18.10
.08	SE (MEAN)	.03
3.52	STD DEVIATION	1.39
.06	SE (STD DEV)	.02
34.30	MINIMUM	13.50
55.90	MAXIMUM	22.01
SYMMETRY---VETA I = -.24		
KURTOSIS---VETA II = 3.06		
COEF. OF VARIATION = 7.7%		
NUMBER OF SUBJECTS = 1774		

## FREQUENCY TABLE

### FEMALES

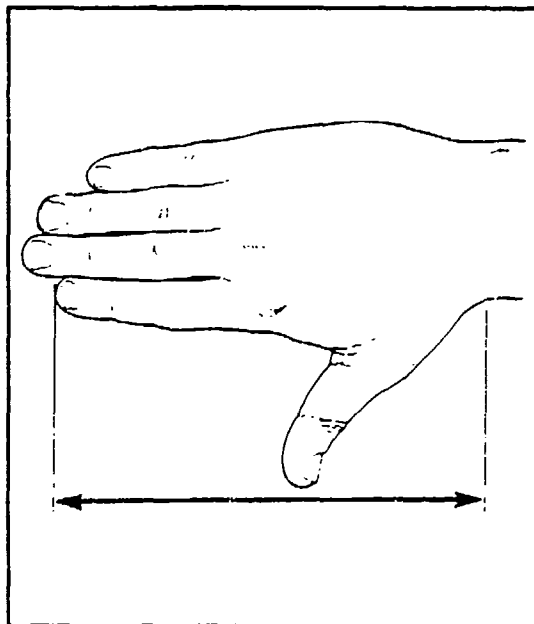
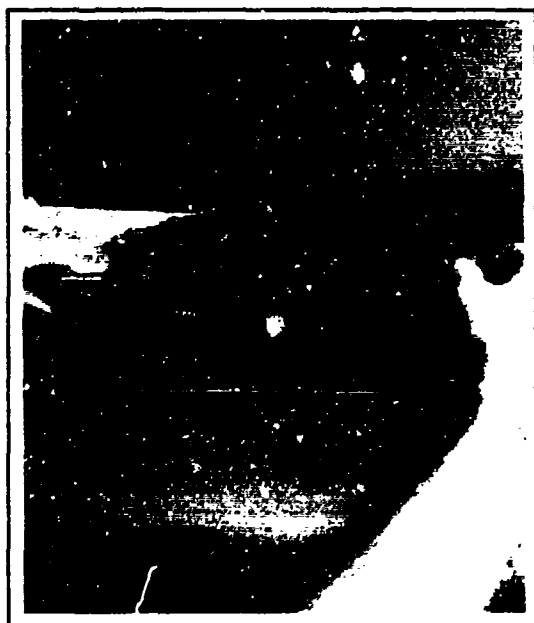
F	FPct	CumF	CumFPct
2	.09	2	.09
1	.05	3	.14
0	.00	3	.14
2	.09	5	.23
0	.00	5	.23
2	.09	7	.32
2	.09	9	.41
6	.27	15	.68
1	.72	31	1.40
21	.95	52	2.36
23	1.04	75	3.40
30	1.36	105	4.76
42	1.90	147	6.66
40	1.81	187	8.47
59	2.67	246	11.14
65	2.94	311	14.09
69	3.13	380	17.21
91	4.12	471	21.33
81	3.67	552	25.00
102	4.62	654	29.62
102	4.62	756	34.24
114	5.16	870	39.40
110	4.98	980	44.38
122	5.53	1102	49.91
110	4.98	1212	54.89
139	6.30	1351	61.19
111	5.03	1462	66.21
110	4.98	1572	71.20
117	5.30	1689	76.49
106	4.80	1795	81.30
81	3.67	1876	84.96
72	3.26	1948	88.22
67	3.03	2015	91.26
66	2.99	2081	94.25
25	1.13	2106	95.38
26	1.18	2132	96.56
25	1.13	2157	97.69
15	.68	2172	98.37
17	.77	2189	99.14
8	.36	2197	99.50
4	.18	2201	99.68
4	.18	2205	99.86
1	.05	2206	99.91
2	.09	2208	100.00

### MALES

F	FPct	CumF	CumFPct
2	.11	2	.11
3	.17	5	.28
0	.00	5	.28
4	.23	9	.51
4	.23	13	.73
5	.28	18	1.01
6	.34	24	1.35
13	.73	37	2.09
17	.96	54	3.04
8	.45	62	3.49
23	1.30	85	4.79
24	1.35	109	6.14
34	1.92	143	8.06
35	1.97	178	10.03
41	2.31	219	12.34
42	2.37	261	14.71
54	3.04	315	17.76
55	3.10	370	20.86
69	3.89	439	24.75
73	4.11	512	28.86
82	4.62	594	33.48
94	5.30	688	38.78
112	6.31	800	45.10
102	5.75	902	50.85
97	5.47	999	56.31
109	6.14	1108	62.46
106	5.98	1214	68.43
94	5.30	1308	73.73
99	5.58	1407	79.31
70	3.95	1477	83.26
65	3.66	1542	86.92
51	2.87	1593	89.80
43	2.42	1636	92.22
26	1.47	1662	93.69
32	1.80	1694	95.49
19	1.07	1713	96.56
19	1.07	1732	97.63
16	.90	1748	98.53
9	.51	1757	99.04
5	.28	1762	99.32
6	.34	1768	99.66
2	.11	1770	99.77
2	.11	1772	99.89
2	.11	1774	100.00

## (129) WRIST-INDEX FINGER LENGTH

The distance between the stylium landmark on the right wrist and the tip of the right index finger is measured with a Poech caliper. The subject places the palm on a table, the fingers together, and the thumb abducted. The middle finger is parallel to the long axis of the forearm. The two distal phalanges of the fingers lie on a flat surface 8 mm higher than the table.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
14.90	5.86	1ST	16.06	6.32
15.12	5.95	2ND	16.32	6.42
15.27	6.01	3RD	16.47	6.49
15.48	6.09	5TH	16.68	6.57
15.79	6.22	10TH	16.98	6.68
16.01	6.30	15TH	17.18	6.76
16.18	6.37	20TH	17.33	6.82
16.33	6.43	25TH	17.47	6.88
16.46	6.48	30TH	17.60	6.93
16.58	6.52	35TH	17.71	6.97
16.69	6.57	40TH	17.82	7.02
16.80	6.61	45TH	17.93	7.06
16.91	6.66	50TH	18.04	7.10
17.02	6.70	55TH	18.16	7.15
17.13	6.74	60TH	18.27	7.19
17.24	6.79	65TH	18.39	7.24
17.36	6.84	70TH	18.52	7.29
17.50	6.89	75TH	18.67	7.35
17.65	6.95	80TH	18.83	7.41
17.82	7.02	85TH	19.02	7.49
18.05	7.11	90TH	19.27	7.59
18.41	7.25	95TH	19.64	7.75
18.66	7.35	97TH	19.88	7.83
18.86	7.42	98TH	20.06	7.90
19.19	7.55	99TH	20.34	8.01

# WRIST-INDEX FINGER LENGTH

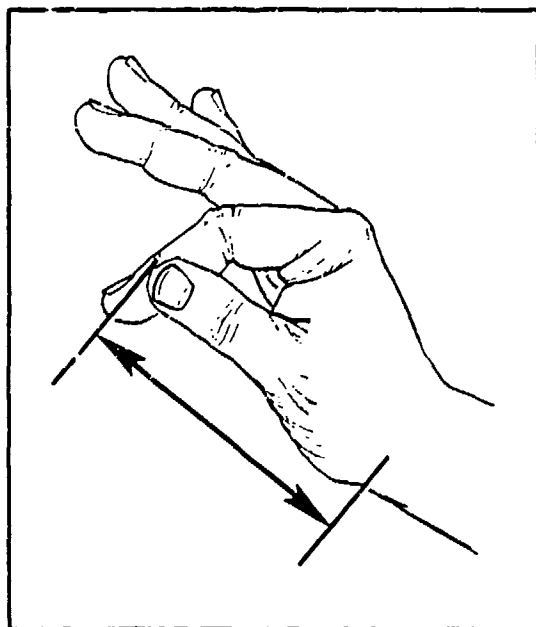
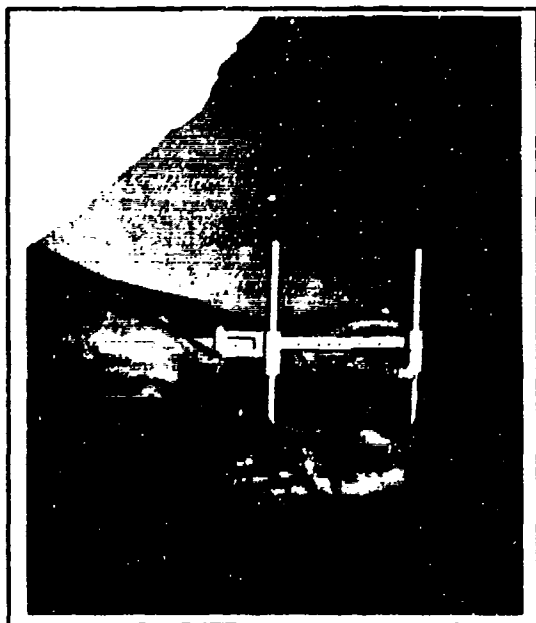
FEMALES		
<u>CM</u>		<u>INCHES</u>
16.92	MEAN VALUE	6.66
.02	SE(MEAN)	.00
.89	STD DEVIATION	.35
.00	SE(STD DEV)	.00
14.00	MINIMUM	5.51
20.20	MAXIMUM	7.95
SYMMETRY---VETA I = .11		
KURTOSIS---VETA II = 3.20		
COEF. OF VARIATION = 5.2%		
NUMBER OF SUBJECTS = 2208		

MALES		
<u>CM</u>		<u>INCHES</u>
18.08	MEAN VALUE	7.12
.02	SE(MEAN)	.00
.91	STD DEVIATION	.36
.02	SE(STD DEV)	.00
14.80	MINIMUM	5.83
21.60	MAXIMUM	8.50
SYMMETRY---VETA I = .22		
KURTOSIS---VETA II = 3.27		
COEF. OF VARIATION = 5.0%		
NUMBER OF SUBJECTS = 1774		

FREQUENCY TABLE									
FEMALES									
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct	CumF	CumFPct
3	.14	3	.14	13.95 -	14.15	1	.06	1	.06
3	.14	6	.27	14.15 -	14.35	1	.06	2	.11
3	.14	9	.41	14.35 -	14.55	0	.00	2	.11
5	.23	14	.63	14.55 -	14.75	3	.17	5	.28
10	.45	24	1.09	14.75 -	14.95	0	.00	5	.28
27	1.22	51	2.31	14.95 -	15.15	11	.62	16	.90
28	1.27	79	3.58	15.15 -	15.35	4	.23	20	1.13
44	1.99	123	5.57	15.35 -	15.55	15	.85	35	1.97
76	3.44	199	9.01	15.55 -	15.75	26	1.47	61	3.44
94	4.26	293	13.27	15.75 -	15.95	48	2.71	109	6.14
129	5.84	422	19.11	15.95 -	16.15	66	3.72	175	9.86
145	6.57	567	25.68	16.15 -	16.35	81	4.57	256	14.43
184	8.33	751	34.01	16.35 -	16.55	109	6.14	365	20.57
191	8.65	942	42.66	16.55 -	16.75	121	6.82	486	27.40
196	8.88	1138	51.54	16.75 -	16.95	166	9.36	652	36.75
208	9.42	1346	60.96	16.95 -	17.15	161	9.08	813	45.83
190	8.61	1536	69.57	17.15 -	17.35	164	9.24	977	55.07
167	7.56	1703	77.13	17.35 -	17.55	147	8.29	1124	63.36
146	6.61	1849	83.74	17.55 -	17.75	132	7.44	1256	70.80
99	4.48	1948	88.22	17.75 -	17.95	128	7.22	1384	78.02
70	3.17	2018	91.39	17.95 -	18.15	89	5.02	1473	83.03
64	2.90	2082	94.29	18.15 -	18.35	78	4.40	1551	87.43
42	1.90	2124	96.20	18.35 -	18.55	71	4.00	1622	91.43
28	1.27	2152	97.46	18.55 -	18.75	49	2.76	1671	94.19
24	1.09	2176	98.55	18.75 -	18.95	36	2.03	1707	96.22
8	.36	2184	98.91	18.95 -	19.15	22	1.24	1729	97.46
12	.54	2196	99.46	19.15 -	19.35	20	1.13	1749	98.59
6	.27	2202	99.73	19.35 -	19.55	7	.39	1756	98.99
4	.18	2206	99.91	19.55 -	19.75	6	.34	1762	99.32
0	.00	2206	99.91	19.75 -	19.95	5	.28	1767	99.61
1	.05	2207	99.95	19.95 -	20.15	1	.06	1768	99.66
1	.05	2208	100.00	20.15 -	20.35	2	.11	1770	99.77
				20.35 -	20.55	2	.11	1772	99.89
				20.55 -	20.75	1	.06	1773	99.94
				20.75 -	20.95	1	.06	1774	100.00
				20.95 -	21.15				
				21.15 -	21.35				
				21.35 -	21.55				
				21.55 -	21.75				

## (130) WRIST-THUMB TIP LENGTH

The horizontal distance between the stylium landmark on the right wrist and the tip of the right thumb is measured with a Poech caliper. The subject rests the little finger side of the hand on a flat surface. The thumb is held straight and in line with the long axis of the forearm. The thumb rests on the first knuckle of the curved index finger.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
10.28	4.05	1ST	10.94	4.31
10.45	4.11	2ND	11.12	4.38
10.55	4.16	3RD	11.23	4.42
10.70	4.21	5TH	11.38	4.48
10.92	4.30	10TH	11.61	4.57
11.08	4.36	15TH	11.76	4.63
11.20	4.41	20TH	11.88	4.68
11.30	4.45	25TH	11.99	4.72
11.40	4.49	30TH	12.08	4.76
11.49	4.52	35TH	12.17	4.79
11.58	4.56	40TH	12.25	4.82
11.66	4.59	45TH	12.33	4.86
11.75	4.62	50TH	12.42	4.89
11.83	4.66	55TH	12.50	4.92
11.92	4.69	60TH	12.58	4.95
12.01	4.73	65TH	12.67	4.99
12.11	4.77	70TH	12.77	5.03
12.21	4.81	75TH	12.87	5.07
12.33	4.85	80TH	12.99	5.11
12.47	4.91	85TH	13.13	5.17
12.64	4.98	90TH	13.31	5.24
12.90	5.08	95TH	13.59	5.35
13.06	5.14	97TH	13.78	5.43
13.18	5.19	98TH	13.92	5.48
13.36	5.26	99TH	14.15	5.57

# WRIST-THUMB TIP LENGTH

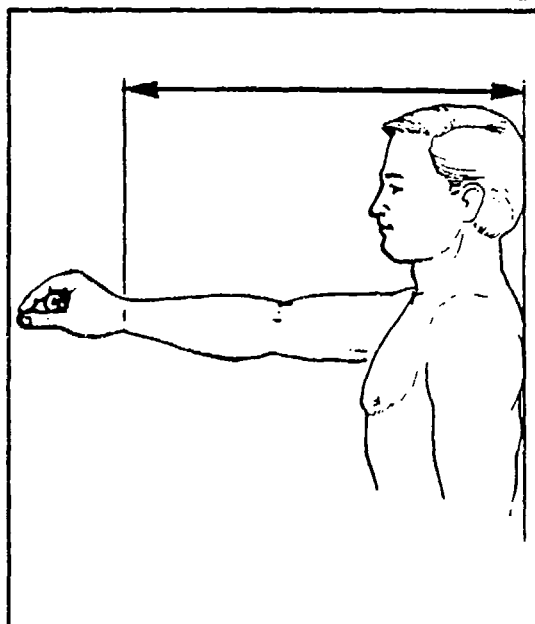
FEMALES		
CM		INCHES
11.76	MEAN VALUE	4.63
.00	SE (MEAN)	.00
.67	STD DEVIATION	.26
.00	SE (STD DEV)	.00
9.60	MINIMUM	3.78
14.20	MAXIMUM	5.59
SYMMETRY---VETA I = .13		
KURTOSIS---VETA II = 3.06		
COEF. OF VARIATION = 5.7%		
NUMBER OF SUBJECTS = 2208		

MALES		
CM		INCHES
12.44	MEAN VALUE	4.90
.02	SE (MEAN)	.00
.67	STD DEVIATION	.27
.00	SE (STD DEV)	.00
10.40	MINIMUM	4.09
15.10	MAXIMUM	5.94
SYMMETRY---VETA I = .23		
KURTOSIS---VETA II = 3.24		
COEF. OF VARIATION = 5.4%		
NUMBER OF SUBJECTS = 1774		

FREQUENCY TABLE									
FEMALES					MALES				
F	FPct	CumF	CumFPct	CENTIMETERS	F	FPct	CumF	CumFPct	
1	.05	1	.05	9.55 - 9.65					
2	.09	3	.14	9.65 - 9.75					
1	.05	4	.18	9.75 - 9.85					
3	.14	7	.32	9.85 - 9.95					
2	.09	9	.41	9.95 - 10.05					
4	.18	13	.59	10.05 - 10.15					
4	.18	17	.77	10.15 - 10.25					
13	.59	30	1.36	10.25 - 10.35					
14	.63	44	1.99	10.35 - 10.45	2	.11	2	.11	
25	1.13	69	3.13	10.45 - 10.55	0	.00	2	.11	
32	1.45	101	4.57	10.55 - 10.65	1	.06	3	.17	
39	1.77	140	6.34	10.65 - 10.75	3	.17	6	.34	
37	1.68	177	8.02	10.75 - 10.85	4	.23	10	.56	
63	2.85	240	10.87	10.85 - 10.95	10	.56	20	1.13	
55	2.49	295	13.36	10.95 - 11.05	7	.39	27	1.52	
89	4.03	384	17.39	11.05 - 11.15	9	.51	36	2.03	
94	4.26	478	21.65	11.15 - 11.25	21	1.18	57	3.21	
115	5.21	593	26.86	11.25 - 11.35	25	1.41	82	4.62	
116	5.25	709	32.11	11.35 - 11.45	37	2.09	119	6.71	
141	6.39	850	38.50	11.45 - 11.55	40	2.25	159	8.96	
137	6.20	987	44.70	11.55 - 11.65	45	2.54	204	11.50	
133	6.02	1120	50.72	11.65 - 11.75	61	3.44	265	14.94	
116	5.25	1236	55.98	11.75 - 11.85	60	3.38	325	18.32	
112	5.07	1348	61.05	11.85 - 11.95	80	4.51	405	22.83	
140	6.34	1488	67.39	11.95 - 12.05	96	5.41	501	28.24	
109	4.94	1597	72.33	12.05 - 12.15	90	5.07	591	33.31	
110	4.98	1707	77.31	12.15 - 12.25	108	6.09	699	39.40	
97	4.39	1804	81.70	12.25 - 12.35	120	6.76	819	46.17	
75	3.40	1879	85.10	12.35 - 12.45	101	5.69	920	51.86	
66	2.99	1945	88.09	12.45 - 12.55	110	6.20	1030	58.06	
49	2.22	1994	90.31	12.55 - 12.65	97	5.47	1127	63.53	
51	2.31	2045	92.62	12.65 - 12.75	112	6.31	1239	69.84	
43	1.95	2088	94.57	12.75 - 12.85	78	4.40	1317	74.24	
14	.63	2102	95.20	12.85 - 12.95	68	3.83	1385	78.07	
33	1.49	2135	96.69	12.95 - 13.05	79	4.45	1464	82.53	
23	1.04	2158	97.74	13.05 - 13.15	56	3.16	1520	85.68	
19	.86	2177	98.60	13.15 - 13.25	54	3.04	1574	88.73	
10	.45	2187	99.05	13.25 - 13.35	35	1.97	1609	90.70	
6	.27	2193	99.32	13.35 - 13.45	42	2.37	1651	93.07	
4	.18	2197	99.50	13.45 - 13.55	28	1.58	1679	94.64	
3	.14	2200	99.64	13.55 - 13.65	18	1.01	1697	95.66	
2	.09	2202	99.73	13.65 - 13.75	22	1.24	1719	96.90	
1	.05	2203	99.77	13.75 - 13.85	11	.62	1730	97.52	
2	.09	2205	99.86	13.85 - 13.95	7	.39	1737	97.91	
2	.09	2207	99.95	13.95 - 14.05	13	.73	1750	98.65	
0	.00	2207	99.95	14.05 - 14.15	7	.39	1757	99.04	
1	.05	2208	100.00	14.15 - 14.25	6	.34	1763	99.38	
				14.25 - 14.35	3	.17	1766	99.55	
				14.35 - 14.45	2	.11	1768	99.66	
				14.45 - 14.55	1	.06	1769	99.72	
				14.55 - 14.65	0	.00	1769	99.72	
				14.65 - 14.75	1	.06	1770	99.77	
				14.75 - 14.85	2	.11	1772	99.89	
				14.85 - 14.95	1	.06	1773	99.94	
				14.95 - 15.05	0	.00	1773	99.94	
				15.05 - 15.15	1	.06	1774	100.00	

# (131) WRIST-WALL LENGTH

The horizontal distance between a back wall and the stylium landmark on the right wrist of the outstretched arm is measured on a wall scale. The subject stands erect in a corner looking straight ahead with the feet together and the heels 20 cm from the back wall. The buttocks and shoulders are against the wall. The right arm and hand with the palm down are stretched forward horizontally against a scale on the side wall. The thumb continues the horizontal line of the arm and the index finger curves around to touch the pad at the end of the thumb. The subject's right shoulder is held against the rear wall.



## THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
55.30	21.77	1ST	60.69	23.90
55.89	22.00	2ND	61.36	24.16
56.30	22.16	3RD	61.83	24.34
56.89	22.40	5TH	62.51	24.61
57.89	22.79	10TH	63.65	25.06
58.60	23.07	15TH	64.46	25.38
59.19	23.30	20TH	65.12	25.64
59.71	23.51	25TH	65.70	25.86
60.18	23.69	30TH	66.22	26.07
60.62	23.87	35TH	66.70	26.26
61.05	24.04	40TH	67.16	26.44
61.47	24.20	45TH	67.61	26.62
61.89	24.36	50TH	68.05	26.79
62.31	24.53	55TH	68.49	26.96
62.73	24.70	60TH	68.94	27.14
63.18	24.87	65TH	69.40	27.32
63.65	25.06	70TH	69.89	27.52
64.16	25.26	75TH	70.42	27.73
64.74	25.49	80TH	71.02	27.96
65.41	25.75	85TH	71.71	28.23
66.26	26.09	90TH	72.60	28.58
67.52	26.58	95TH	73.96	29.12
68.34	26.91	97TH	74.88	29.48
68.95	27.15	98TH	75.58	29.75
69.91	27.52	99TH	76.73	30.21

# WRIST-WALL LENGTH

FEMALES			
CM		INCHES	
61.98	MEAN VALUE	24.40	
.07	SE (MEAN)	.03	
3.21	STD DEVIATION	1.26	
.05	SE (STD DEV)	.02	
50.80	MINIMUM	20.00	
76.30	MAXIMUM	30.04	
SYMMETRY---VETA I = .20			
KURTOSIS---VETA II = 3.02			
COEF. OF VARIATION = 5.2%			
NUMBER OF SUBJECTS = 2208			

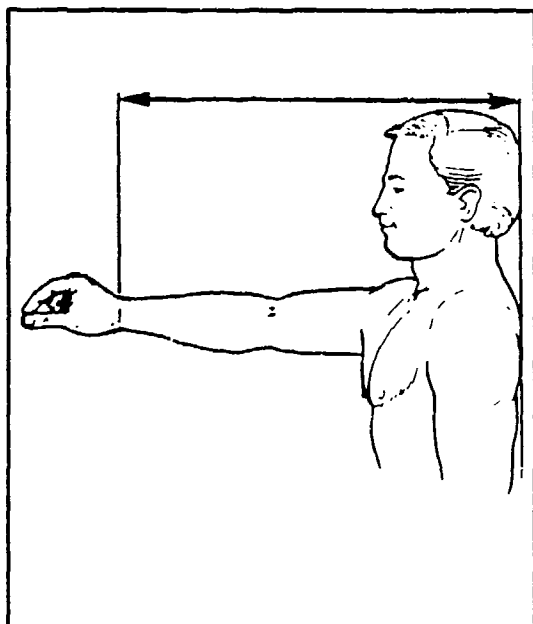
MALES			
CM		INCHES	
68.09	MEAN VALUE	26.81	
.08	SE (MEAN)	.03	
3.48	STD DEVIATION	1.37	
.06	SE (STD DEV)	.02	
56.50	MINIMUM	22.24	
83.50	MAXIMUM	32.87	
SYMMETRY---VETA I = .19			
KURTOSIS---VETA II = 3.16			
COEF. OF VARIATION = 5.1%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES				CENTIMETERS				MALES			
F	FPct	CumF	CumFPct					F	FPct	CumF	CumFPct
1	.05	1	.05	50.55 -	51.55						
2	.09	3	.14	51.55 -	52.55						
3	.14	6	.27	52.55 -	53.55						
6	.27	12	.54	53.55 -	54.55						
16	.72	28	1.27	54.55 -	55.55						
53	2.40	81	3.67	55.55 -	56.55			1	.06	1	.06
94	4.26	175	7.93	56.55 -	57.55			1	.06	2	.11
158	7.16	333	15.08	57.55 -	58.55			2	.11	4	.23
178	8.06	511	23.14	58.55 -	59.55			3	.17	7	.39
249	11.28	760	34.42	59.55 -	60.55			9	.51	16	.90
243	11.01	1003	45.43	60.55 -	61.55			23	1.30	39	2.20
278	12.59	1281	58.02	61.55 -	62.55			47	2.65	86	4.85
244	11.05	1525	69.07	62.55 -	63.55			92	5.19	178	10.03
216	9.78	1741	78.85	63.55 -	64.55			108	6.09	286	16.12
171	7.74	1912	86.59	64.55 -	65.55			135	7.61	421	23.73
117	5.30	2029	91.89	65.55 -	66.55			178	10.03	599	33.77
81	3.67	2110	95.56	66.55 -	67.55			194	10.94	793	44.70
42	1.90	2152	97.46	67.55 -	68.55			205	11.56	998	56.26
26	1.18	2178	98.64	68.55 -	69.55			186	10.48	1184	66.74
20	.91	2198	99.55	69.55 -	70.55			161	9.08	1345	75.82
8	.36	2206	99.91	70.55 -	71.55			136	7.67	1481	83.48
0	.00	2206	99.91	71.55 -	72.55			116	6.54	1597	90.02
0	.00	2206	99.91	72.55 -	73.55			72	4.06	1669	94.08
0	.00	2206	99.91	73.55 -	74.55			48	2.71	1717	96.79
1	.05	2207	99.95	74.55 -	75.55			20	1.13	1737	97.91
1	.05	2208	100.00	75.55 -	76.55			18	1.01	1755	98.93
				76.55 -	77.55			11	.62	1766	99.55
				77.55 -	78.55			4	.23	1770	99.77
				78.55 -	79.55			2	.11	1772	99.89
				79.55 -	80.55			0	.00	1772	99.89
				80.55 -	81.55			0	.00	1772	99.89
				81.55 -	82.55			0	.00	1772	99.89
				82.55 -	83.55			2	.11	1774	100.00



## (132) WRIST-WALL LENGTH, EXTENDED

The horizontal distance between a back wall and the stylium landmark on the right wrist of the maximally outstretched arm is measured on a wall scale. The subject stands erect in a corner looking straight ahead with the feet together and the heels 20 cm from the back wall. The buttocks and left shoulder are against the wall. The right arm and hand with the palm down are stretched forward horizontally as far as possible against the side wall. The thumb continues the horizontal line of the arm and the index finger curves around to touch the pad at the end of the thumb. The subject's left shoulder is held against the rear wall.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
60.56	23.84	1ST	66.43	26.15
61.29	24.13	2ND	67.34	26.51
61.78	24.32	3RD	67.94	26.75
62.47	24.60	5TH	68.78	27.08
63.59	25.04	10TH	70.09	27.59
64.37	25.34	15TH	70.98	27.95
65.01	25.59	20TH	71.69	28.23
65.56	25.81	25TH	72.31	28.47
66.07	26.01	30TH	72.86	28.69
66.54	26.20	35TH	73.37	28.89
66.99	26.37	40TH	73.85	29.08
67.43	26.55	45TH	74.32	29.26
67.87	26.72	50TH	74.79	29.44
68.31	26.89	55TH	75.25	29.63
68.76	27.07	60TH	75.72	29.81
69.22	27.25	65TH	76.21	30.00
69.72	27.45	70TH	76.72	30.20
70.25	27.66	75TH	77.28	30.43
70.85	27.90	80TH	77.91	30.67
71.55	28.17	85TH	78.65	30.97
72.43	28.52	90TH	79.61	31.34
73.74	29.03	95TH	81.07	31.92
74.59	29.37	97TH	82.06	32.31
75.21	29.61	98TH	82.82	32.61
76.19	29.99	99TH	84.08	33.10

# WRIST-WALL LENGTH, EXTENDED

FEMALES			
<u>CM</u>		<u>INCHES</u>	
67.93	MEAN VALUE	26.74	
.07	SE (MEAN)	.03	
3.43	STD DEVIATION	1.35	
.05	SE (STD DEV)	.02	
56.00	MINIMUM	22.05	
84.50	MAXIMUM	33.27	
SYMMETRY---VETA I = .17			
KURTOSIS---VETA II = 3.14			
COEF. OF VARIATION = 5.1%			
NUMBER OF SUBJECTS = 2208			

MALES			
<u>CM</u>		<u>INCHES</u>	
74.84	MEAN VALUE	29.47	
.09	SE (MEAN)	.03	
3.73	STD DEVIATION	1.47	
.06	SE (STD DEV)	.02	
63.00	MINIMUM	24.80	
90.30	MAXIMUM	35.55	
SYMMETRY---VETA I = .14			
KURTOSIS---VETA II = 3.23			
COEF. OF VARIATION = 5.0%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct	CumF	CumFPct		
1	.05	1	.05	55.55 -	56.55						
1	.05	2	.09	56.55 -	57.55						
2	.09	4	.18	57.55 -	58.55						
6	.27	10	.45	58.55 -	59.55						
14	.63	24	1.09	59.55 -	60.55						
36	1.63	60	2.72	60.55 -	61.55						
48	2.17	108	4.89	61.55 -	62.55						
103	4.66	211	9.56	62.55 -	63.55						
158	7.16	369	16.71	63.55 -	64.55	2	.11	2	.11		
188	8.51	557	25.23	64.55 -	65.55	1	.06	3	.17		
238	10.78	795	36.01	65.55 -	66.55	5	.28	8	.45		
242	10.96	1037	46.97	66.55 -	67.55	13	.73	21	1.18		
233	10.55	1270	57.52	67.55 -	68.55	23	1.30	44	2.48		
243	11.01	1513	68.52	68.55 -	69.55	34	1.92	78	4.40		
201	9.10	1714	77.63	69.55 -	70.55	52	2.93	130	7.33		
185	8.38	1899	86.01	70.55 -	71.55	82	4.62	212	11.95		
115	5.21	2014	91.21	71.55 -	72.55	121	6.82	333	18.77		
79	3.58	2093	94.79	72.55 -	73.55	146	8.23	479	27.00		
48	2.17	2141	96.97	73.55 -	74.55	180	10.15	659	37.15		
31	1.40	2172	98.37	74.55 -	75.55	194	10.94	853	48.08		
20	.91	2192	99.28	75.55 -	76.55	194	10.94	1047	59.02		
8	.36	2200	99.64	76.55 -	77.55	178	10.03	1225	69.05		
4	.18	2204	99.82	77.55 -	78.55	152	8.57	1377	77.62		
2	.09	2206	99.91	78.55 -	79.55	116	6.54	1493	84.16		
0	.00	2206	99.91	79.55 -	80.55	97	5.47	1590	89.63		
1	.05	2207	99.95	80.55 -	81.55	75	4.23	1665	93.86		
0	.00	2207	99.95	81.55 -	82.55	45	2.54	1710	96.39		
0	.00	2207	99.95	82.55 -	83.55	25	1.41	1735	97.80		
0	.00	2207	99.95	83.55 -	84.55	19	1.07	1754	98.87		
1	.05	2208	100.00	84.55 -	85.55	5	.28	1759	99.15		
				85.55 -	86.55	10	.56	1769	99.72		
				86.55 -	87.55	1	.06	1770	99.77		
				87.55 -	88.55	2	.11	1772	99.89		
				88.55 -	89.55	0	.00	1772	99.89		
				89.55 -	90.55	0	.00	1772	99.89		
						2	.11	1774	100.00		

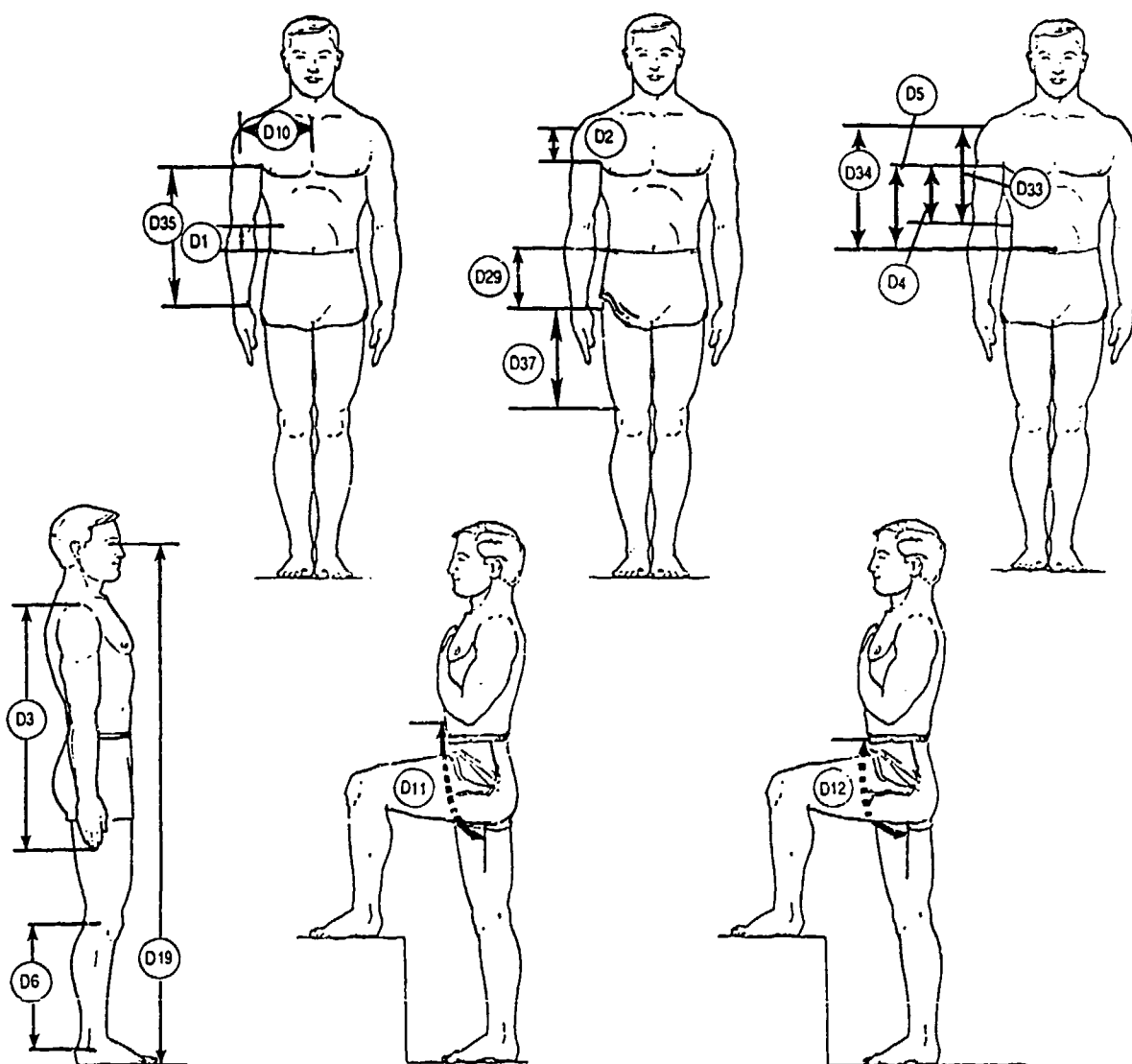
## CHAPTER V

### THE DERIVED DIMENSIONS

While logistics demand a reasonable limit to the number of dimensions that can be measured in an anthropometric survey, there is an almost infinite number of additional dimensions that can be calculated from the measured data. Some 60 additional dimensions, concentrated in areas applicable to clothing, workspace, and analog design, were derived from the measured dimensions in this survey. These are intended to meet some of the more specialized needs of designers and engineers in these fields, though users should be cautioned that calculated data may not be as consistently reliable as data obtained by direct measurement.

A visual index begins on the next page and is followed by the data pages, which include dimension descriptions, summary statistics, and percentile and frequency tables.

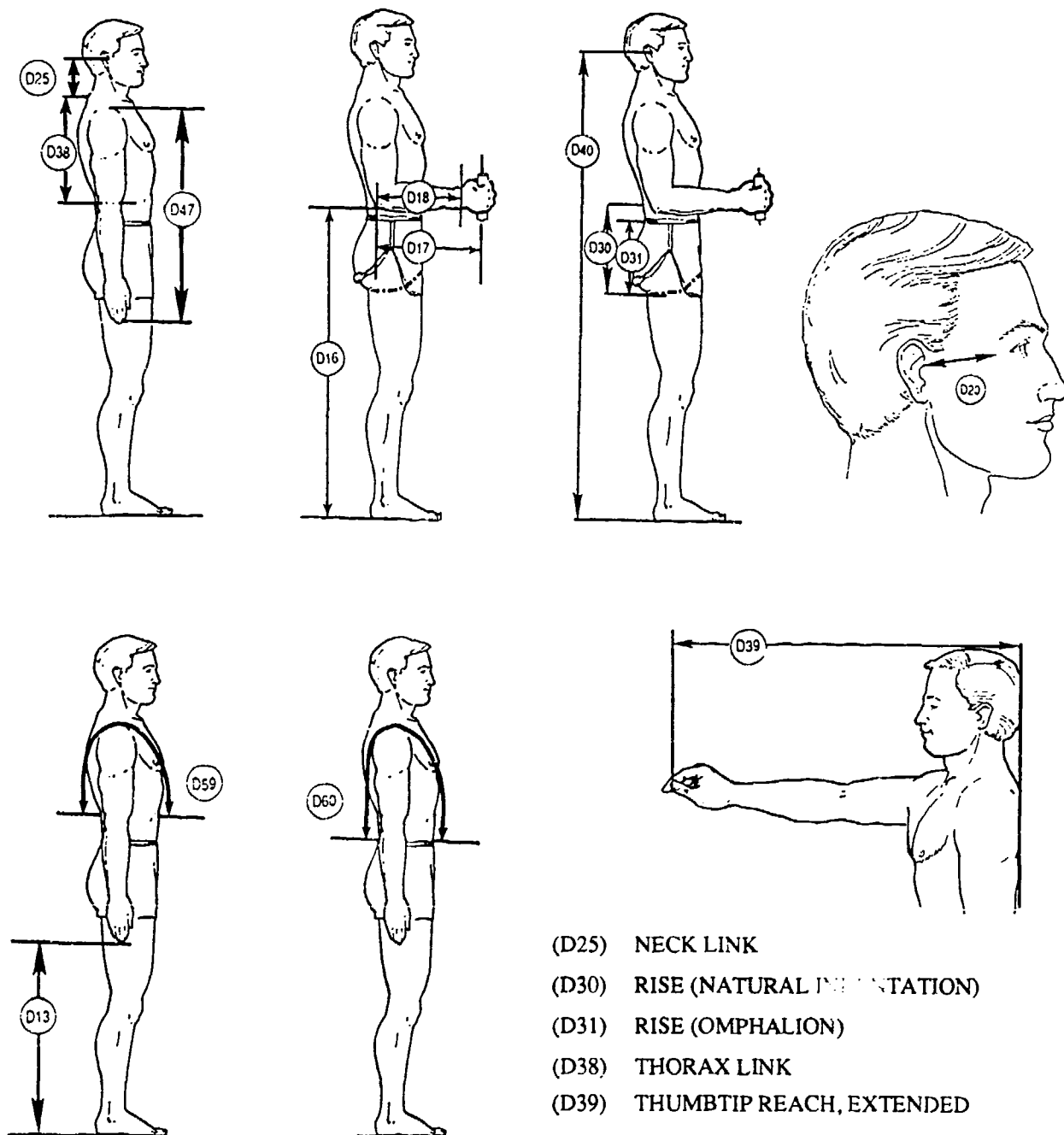
# **VISUAL INDEX - DERIVED DIMENSIONS**



- (D1) ABDOMINAL LINK
- (D2) ACROMION-AXILLA LENGTH
- (D3) ARM LENGTH
- (D4) AXILLA-WAIST LENGTH (NATURAL INDENTATION)
- (D5) AXILLA-WAIST LENGTH (OMPHALION)
- (D6) CALF LINK
- (D10) CLAVICLE LINK
- (D11) CROTCH LENGTH, ANTERIOR (NATURAL INDENTATION)

- (D12) CROTCH LENGTH ANTERIOR (OMPHALION)
- (D19) EYE HEIGHT
- (D29) PELVIC LINK
- (D33) SHOULDER-WAIST LENGTH (NATURAL INDENTATION)
- (D34) SHOULDER-WAIST LENGTH (OMPHALION)
- (D35) SLEEVE INSEAM
- (D37) THIGH LINK

# VISUAL INDEX - DERIVED DIMENSIONS (Continued)



(D13) DACTYLION HEIGHT

(D16) ELBOW REST HEIGHT, STANDING

(D17) ELBOW-CENTER OF GRIP LENGTH

(D18) ELBOW-WRIST LENGTH

(D20) EYE-TRAGION LINK

(D25) NECK LINK

(D30) RISE (NATURAL INDENTATION)

(D31) RISE (OMPHALION)

(D38) THORAX LINK

(D39) THUMB TIP REACH, EXTENDED

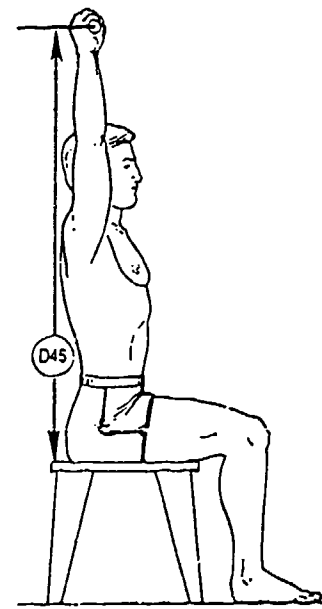
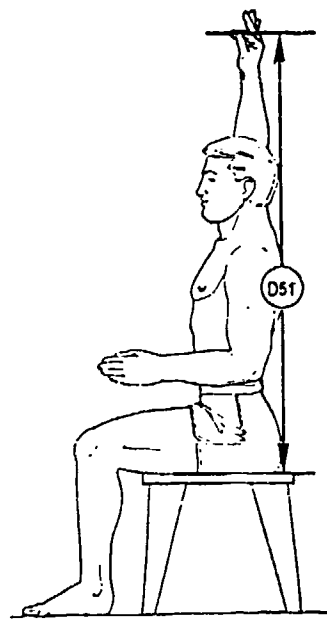
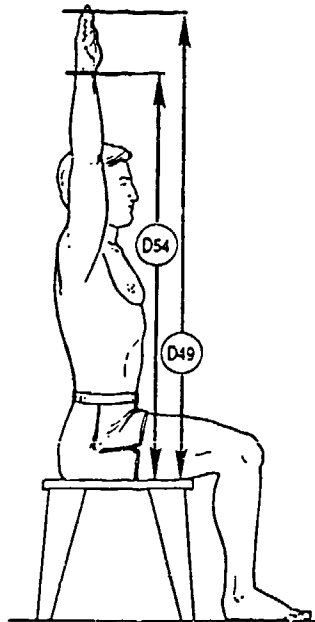
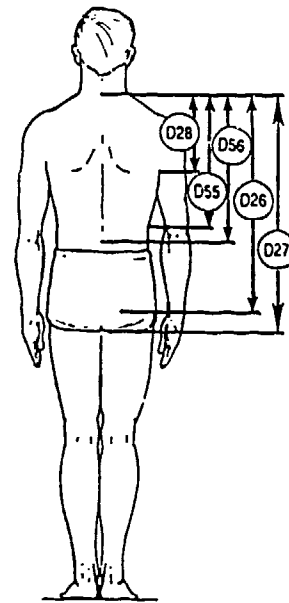
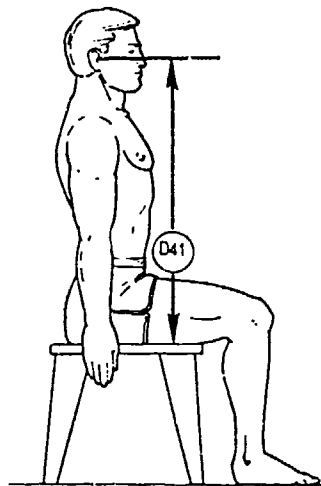
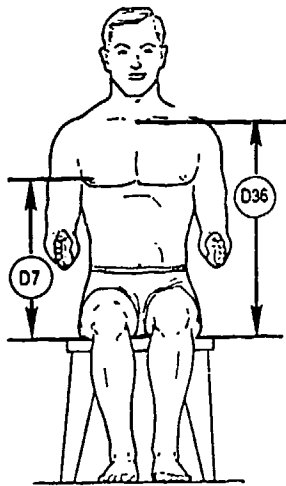
(D40) TRAGION HEIGHT

(D47) VERTICAL INDEX FINGERTIP REACH DOWN

(D59) WAIST-WAIST (NATURAL INDENTATION) OVER SHOULDER

(D60) WAIST-WAIST (OMPHALION) OVER SHOULDER

# VISUAL INDEX - DERIVED DIMENSIONS (Continued)



(D7) CHEST HEIGHT, SITTING

(D26) NECK-BUTTOCK LENGTH

(D27) NECK-GLUTEAL FURROW LENGTH

(D28) NECK-SCYE LENGTH

(D36) SUPRASTERNALE HEIGHT, SITTING

(D41) TRAGION HEIGHT, SITTING

(D45) VERTICAL GRIP REACH, SITTING

(D49) VERTICAL INDEX FINGERTIP REACH, SITTING

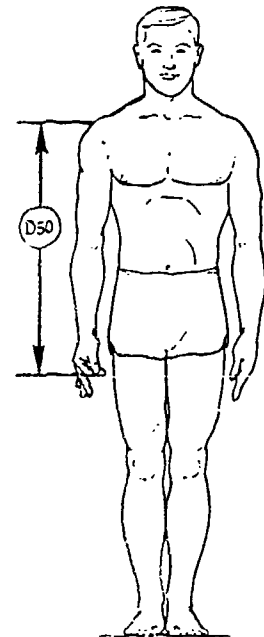
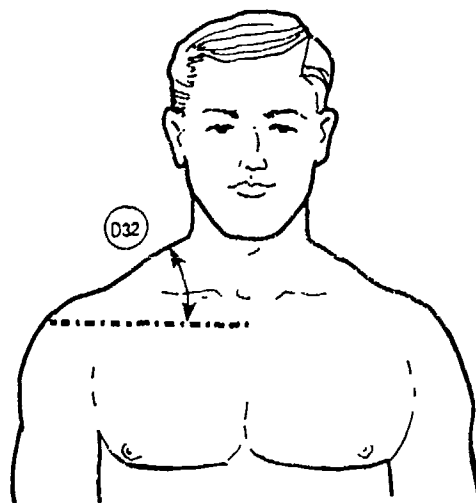
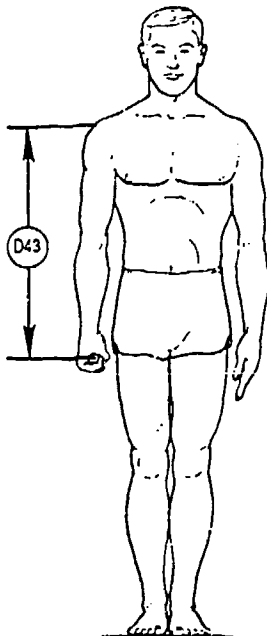
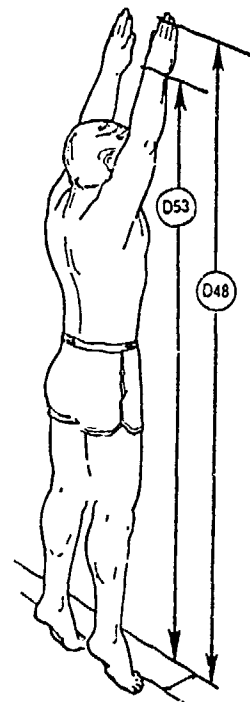
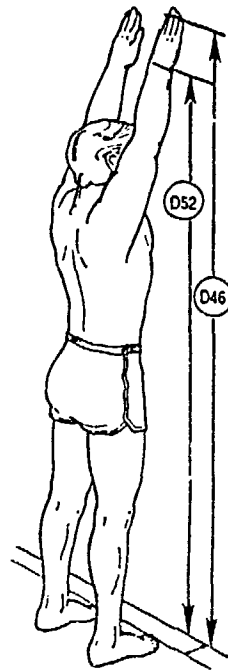
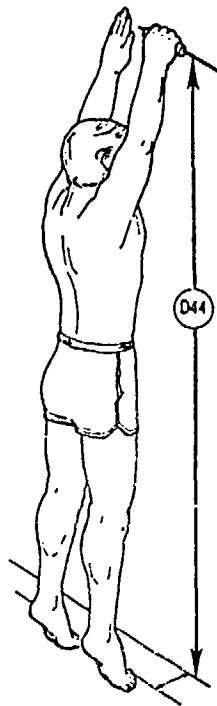
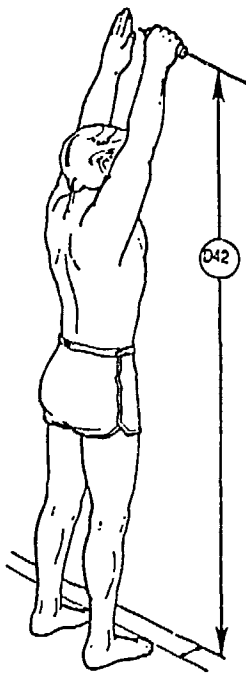
(D51) VERTICAL THUMB TIP REACH, SITTING

(D54) VERTICAL WRIST HEIGHT, SITTING

(D55) WAIST BACK, VERTICAL (NATURAL INDENTATION)

(D56) WAIST BACK, VERTICAL (OMPHALION)

# VISUAL INDEX - DERIVED DIMENSIONS (Continued)



(D32) SHOULDER SLOPE

(D42) VERTICAL GRIP REACH

(D43) VERTICAL GRIP REACH DOWN

(D44) VERTICAL GRIP REACH, EXTENDED

(D46) VERTICAL INDEX FINGERTIP REACH

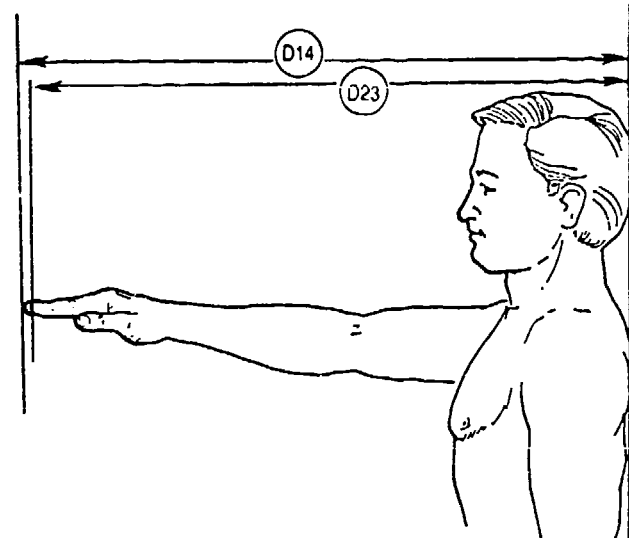
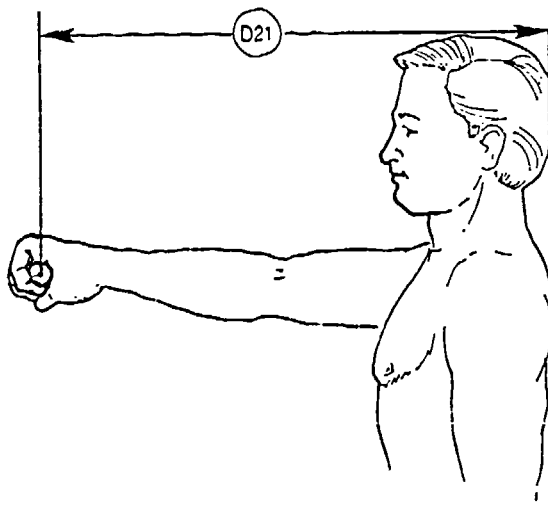
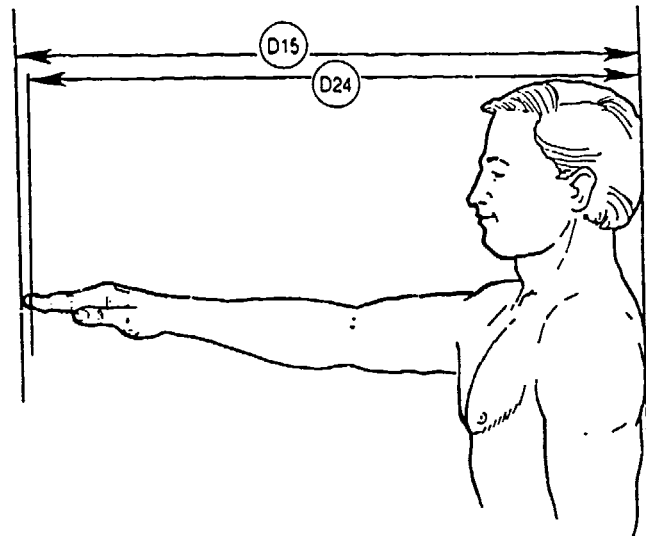
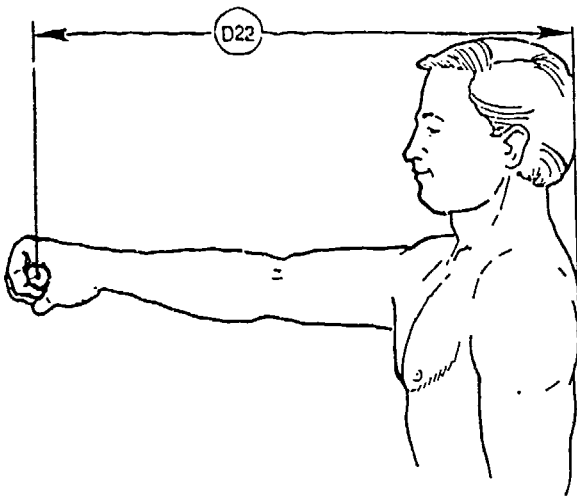
(D48) VERTICAL INDEX FINGERTIP REACH, EXTENDED

(D50) VERTICAL THUMB TIP REACH DOWN

(D52) VERTICAL WRIST HEIGHT

(D53) VERTICAL WRIST HEIGHT, EXTENDED

# VISUAL INDEX - DERIVED DIMENSIONS (Continued)



- (D14) DACTYLION REACH FROM WALL
- (D15) DACTYLION REACH FROM WALL, EXTENDED
- (D21) FUNCTIONAL GRIP REACH
- (D22) FUNCTIONAL GRIP REACH, EXTENDED
- (D23) INDEX FINGER REACH
- (D24) INDEX FINGER REACH, EXTENDED

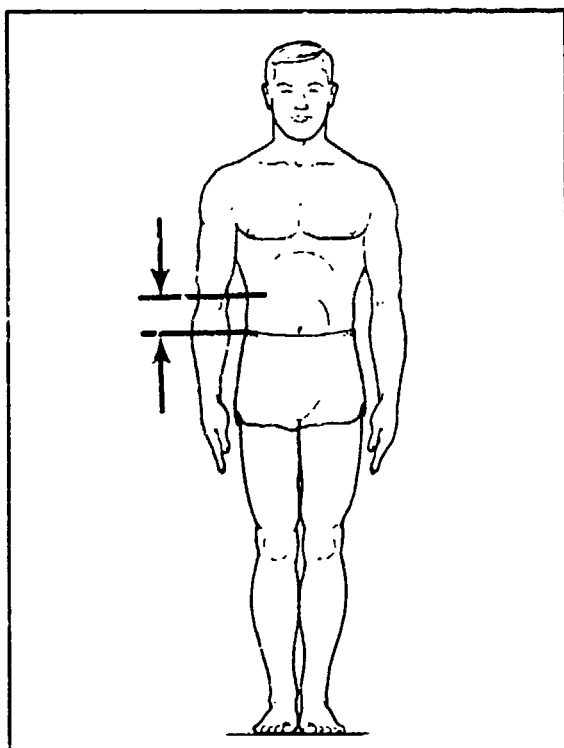
## DERIVED VALUES, NOT ILLUSTRATED:

- (D8) CHEST-WAIST DROP, NATURAL INDENTATION
- (D9) CHEST-WAIST DROP, OMPHALION
- (D57) WAIST-BUTTOCK DROP (NATURAL INDENTATION)
- (D58) WAIST-BUTTOCK DROP (OMPHALION)



## (D1) ABDOMINAL LINK

The vertical distance between the inferior point of the right tenth rib and the iliocristale landmark on the top of the right side of the pelvis is calculated as follows: TENTH RIB HEIGHT minus ILIOCRISTALE HEIGHT.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
2.16	.85	1ST	1.33	.52	
2.61	1.03	2ND	1.77	.70	
2.87	1.13	3RD	2.04	.80	
3.22	1.27	5TH	2.39	.94	
3.74	1.47	10TH	2.91	1.15	
4.07	1.60	15TH	3.25	1.28	
4.34	1.71	20TH	3.52	1.38	
4.56	1.80	25TH	3.75	1.47	
4.77	1.88	30TH	3.95	1.56	
4.96	1.95	35TH	4.14	1.63	
5.14	2.03	40TH	4.32	1.70	
5.32	2.10	45TH	4.50	1.77	
5.50	2.17	50TH	4.68	1.84	
5.68	2.24	55TH	4.86	1.91	
5.87	2.31	60TH	5.05	1.99	
6.06	2.39	65TH	5.25	2.07	
6.27	2.47	70TH	5.46	2.15	
6.50	2.56	75TH	5.70	2.25	
6.77	2.66	80TH	5.98	2.36	
7.08	2.79	85TH	6.32	2.49	
7.48	2.95	90TH	6.78	2.67	
8.10	3.19	95TH	7.52	2.96	
8.50	3.35	97TH	8.05	3.17	
8.81	3.47	98TH	8.47	3.33	
9.28	3.66	99TH	9.17	3.61	

# ABDOMINAL LINK

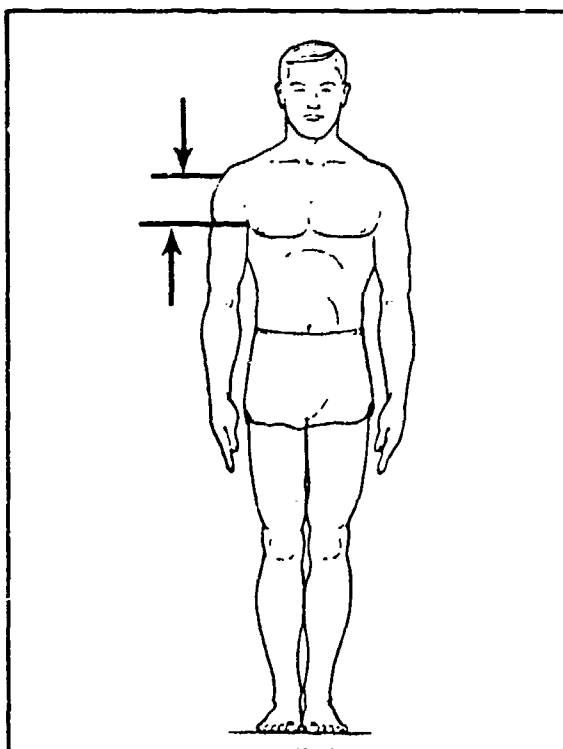
FEMALES			
CM		INCHES	
5.56	MEAN VALUE	2.19	
.03	SE (MEAN)	.00	
1.47	STD DEVIATION	.58	
.02	SE (STD DEV)	.00	
.60	MINIMUM	.24	
11.00	MAXIMUM	4.33	
SYMMETRY---VETA I = .18			
KURTOSIS---VETA II = 3.24			
COEF. OF VARIATION = 26.5%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
4.78	MEAN VALUE	1.88	
.04	SE (MEAN)	.00	
1.57	STD DEVIATION	.62	
.03	SE (STD DEV)	.00	
.10	MINIMUM	.04	
11.00	MAXIMUM	4.33	
SYMMETRY---VETA I = .41			
KURTOSIS---VETA II = 3.63			
COEF. OF VARIATION = 32.7%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
				.05 -	.25	3	.17	3	.17		
1	.05	1	.05	.25 -	.45	1	.06	4	.23		
0	.00	1	.05	.45 -	.65	1	.06	5	.28		
1	.05	2	.09	.65 -	.85	1	.06	6	.34		
0	.00	2	.09	.85 -	1.05	2	.11	8	.45		
4	.18	6	.27	1.05 -	1.25	10	.56	18	1.01		
2	.09	8	.36	1.25 -	1.45	4	.23	22	1.24		
4	.18	12	.54	1.45 -	1.65	6	.34	28	1.58		
6	.27	18	.82	1.65 -	1.85	6	.34	34	1.92		
8	.36	26	1.18	1.85 -	2.05	15	.85	49	2.76		
9	.41	35	1.59	2.05 -	2.25	19	1.07	68	3.83		
9	.41	44	1.99	2.25 -	2.45	22	1.24	90	5.07		
24	1.09	68	3.08	2.45 -	2.65	35	1.97	125	7.05		
22	1.00	90	4.08	2.65 -	2.85	43	2.42	168	9.47		
35	1.59	125	5.66	2.85 -	3.05	42	2.37	210	11.84		
25	1.13	150	6.79	3.05 -	3.25	61	3.44	271	15.28		
44	1.99	194	8.79	3.25 -	3.45	84	4.74	355	20.01		
56	2.54	250	11.32	3.45 -	3.65	71	4.00	426	24.01		
70	3.17	320	14.49	3.65 -	3.85	79	4.45	505	28.47		
75	3.40	395	17.89	3.85 -	4.05	77	4.34	582	32.81		
91	4.12	486	22.01	4.05 -	4.25	83	4.68	665	37.49		
96	4.35	582	26.36	4.25 -	4.45	92	5.19	757	42.67		
109	4.94	691	31.30	4.45 -	4.65	107	6.03	864	48.70		
142	6.43	833	37.73	4.65 -	4.85	95	5.36	959	54.06		
118	5.34	951	43.07	4.85 -	5.05	86	4.85	1045	58.91		
132	5.98	1083	49.05	5.05 -	5.25	99	5.58	1144	64.49		
122	5.53	1205	54.57	5.25 -	5.45	89	5.02	1233	69.50		
112	5.07	1317	59.65	5.45 -	5.65	80	4.51	1313	74.01		
121	5.48	1438	65.13	5.65 -	5.85	69	3.89	1382	77.90		
103	4.66	1541	69.79	5.85 -	6.05	60	3.38	1442	81.29		
86	3.89	1627	73.69	6.05 -	6.25	50	2.82	1492	84.10		
87	3.94	1714	77.63	6.25 -	6.45	42	2.37	1534	86.47		
74	3.35	1788	80.98	6.45 -	6.65	36	2.03	1570	88.50		
83	3.76	1871	84.74	6.65 -	6.85	33	1.86	1603	90.36		
66	2.99	1937	87.73	6.85 -	7.05	33	1.86	1636	92.22		
51	2.31	1988	90.04	7.05 -	7.25	31	1.75	1667	93.97		
45	2.04	2033	92.07	7.25 -	7.45	11	.62	1678	94.59		
42	1.90	2075	93.98	7.45 -	7.65	19	1.07	1697	95.66		
18	.82	2093	94.79	7.65 -	7.85	10	.56	1707	96.22		
23	1.04	2116	95.83	7.85 -	8.05	16	.90	1723	97.13		
23	1.04	2139	96.88	8.05 -	8.25	9	.51	1732	97.63		
12	.54	2151	97.42	8.25 -	8.45	8	.45	1740	98.08		
16	.72	2167	98.14	8.45 -	8.65	4	.23	1744	98.31		
10	.45	2177	98.60	8.65 -	8.85	5	.28	1749	98.59		
8	.36	2185	98.96	8.85 -	9.05	5	.28	1754	98.87		
10	.45	2195	99.41	9.05 -	9.25	4	.23	1758	99.10		
3	.14	2198	99.55	9.25 -	9.45	3	.17	1761	99.27		
3	.14	2201	99.68	9.45 -	9.65	2	.11	1763	99.38		
0	.00	2201	99.68	9.65 -	9.85	3	.17	1766	99.55		
0	.00	2201	99.68	9.85 -	10.05	3	.17	1769	99.72		
2	.09	2203	99.77	10.05 -	10.25	2	.11	1771	99.83		
2	.09	2205	99.86	10.25 -	10.45	0	.00	1771	99.83		
2	.09	2207	99.95	10.45 -	10.65	1	.06	1772	99.89		
1	.05	2208	100.00	10.65 -	10.85	0	.00	1772	99.89		
				10.85 -	11.05	2	.11	1774	100.00		

## (D2) ACROMION-AXILLA LENGTH

The vertical distance between the acromion landmark on the tip of the right shoulder and the anterior-scye-on-the-torso landmark of a subject standing erect with the arms relaxed at the sides is calculated as follows: ACROMIAL HEIGHT minus AXILLA HEIGHT.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
7.86	3.10	1ST	9.90	3.90
8.11	3.19	2ND	10.17	4.00
8.27	3.26	3RD	10.33	4.07
8.49	3.34	5TH	10.55	4.15
8.83	3.48	10TH	10.89	4.29
9.05	3.56	15TH	11.12	4.38
9.23	3.63	20TH	11.30	4.45
9.38	3.69	25TH	11.46	4.51
9.52	3.75	30TH	11.61	4.57
9.64	3.80	35TH	11.74	4.62
9.76	3.84	40TH	11.87	4.67
9.88	3.89	45TH	12.00	4.72
9.99	3.93	50TH	12.13	4.77
10.10	3.98	55TH	12.25	4.82
10.22	4.02	60TH	12.39	4.88
10.33	4.07	65TH	12.52	4.93
10.46	4.12	70TH	12.67	4.99
10.59	4.17	75TH	12.83	5.05
10.75	4.23	80TH	13.01	5.12
10.92	4.30	85TH	13.23	5.21
11.15	4.39	90TH	13.50	5.32
11.50	4.53	95TH	13.91	5.48
11.73	4.62	97TH	14.17	5.58
11.91	4.69	98TH	14.36	5.65
12.20	4.80	99TH	14.65	5.77

## ACROMION-AXILLA LENGTH

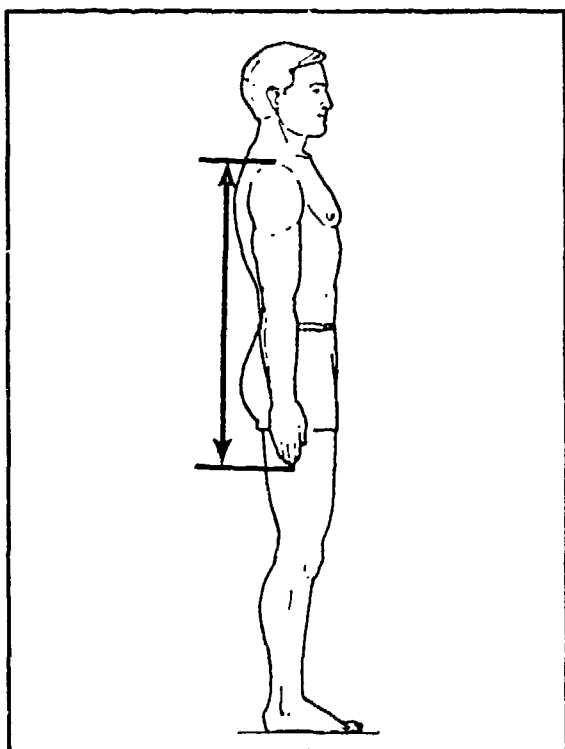
FEMALES		
<u>CM</u>		<u>INCHES</u>
9.99	MEAN VALUE	3.93
.02	SE (MEAN)	.00
.91	STD DEVIATION	.36
.00	SE (STD DEV)	.00
6.80	MINIMUM	2.68
13.30	MAXIMUM	5.24
SYMMETRY---VETA I	=	.04
KURTOSIS---VETA II	=	3.07
COEF. OF VARIATION	=	9.1%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>		<u>INCHES</u>
12.16	MEAN VALUE	4.79
.02	SE (MEAN)	.00
1.03	STD DEVIATION	.40
.02	SE (STD DEV)	.00
8.80	MINIMUM	3.46
16.60	MAXIMUM	6.54
SYMMETRY---VETA I	=	.22
KURTOSIS---VETA II	=	3.22
COEF. OF VARIATION	=	8.4%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE								
FEMALES				MALES				
F	FPct	CumF	CumFPct	CENTIMETERS	F	FPct	CumF	CumFPct
1	.05	1	.05	6.75 - 6.95				
1	.05	2	.09	6.95 - 7.15				
0	.00	2	.09	7.15 - 7.35				
3	.14	5	.23	7.35 - 7.55				
9	.41	14	.63	7.55 - 7.75				
14	.63	28	1.27	7.75 - 7.95				
18	.82	46	2.08	7.95 - 8.15				
38	1.72	84	3.80	8.15 - 8.35				
41	1.86	125	5.66	8.35 - 8.55				
55	2.49	180	8.15	8.55 - 8.75				
100	4.53	280	12.68	8.75 - 8.95	1	.06	1	.06
112	5.07	392	17.75	8.95 - 9.15	0	.00	1	.06
117	5.30	509	23.05	9.15 - 9.35	4	.23	5	.28
175	7.93	684	30.98	9.35 - 9.55	3	.17	8	.45
184	8.33	868	39.31	9.55 - 9.75	5	.28	13	.73
196	8.88	1064	48.19	9.75 - 9.95	7	.39	20	1.13
202	9.15	1266	57.34	9.95 - 10.15	13	.73	33	1.86
178	8.06	1444	65.40	10.15 - 10.35	16	.90	49	2.76
182	8.24	1626	73.64	10.35 - 10.55	42	2.37	91	5.13
161	7.29	1787	80.93	10.55 - 10.75	47	2.65	138	7.78
112	5.07	1899	86.01	10.75 - 10.95	60	3.38	198	11.16
89	4.03	1988	90.04	10.95 - 11.15	80	4.51	278	15.67
70	3.17	2058	93.21	11.15 - 11.35	110	6.20	388	21.87
48	2.17	2106	95.38	11.35 - 11.55	123	6.93	511	28.80
40	1.81	2146	97.19	11.55 - 11.75	115	6.48	626	35.29
18	.82	2164	98.01	11.75 - 11.95	119	6.71	745	42.00
21	.95	2185	98.96	11.95 - 12.15	153	8.62	898	50.62
8	.36	2193	99.32	12.15 - 12.35	134	7.55	1032	58.17
7	.32	2200	99.64	12.35 - 12.55	141	7.95	1173	66.12
6	.27	2206	99.91	12.55 - 12.75	117	6.60	1290	72.72
1	.05	2207	99.95	12.75 - 12.95	110	6.20	1400	78.92
0	.00	2207	99.95	12.95 - 13.15	87	4.90	1487	83.82
1	.05	2208	100.00	13.15 - 13.35	66	3.72	1553	87.54
				13.35 - 13.55	59	3.33	1612	90.87
				13.55 - 13.75	37	2.09	1649	92.95
				13.75 - 13.95	33	1.86	1682	94.81
				13.95 - 14.15	39	2.20	1721	97.01
				14.15 - 14.35	20	1.13	1741	98.14
				14.35 - 14.55	8	.45	1749	98.59
				14.55 - 14.75	12	.68	1761	99.27
				14.75 - 14.95	3	.17	1764	99.44
				14.95 - 15.15	4	.23	1768	99.66
				15.15 - 15.35	1	.06	1769	99.72
				15.35 - 15.55	2	.11	1771	99.83
				15.55 - 15.75	1	.06	1772	99.89
				15.75 - 15.95	0	.00	1772	99.89
				15.95 - 16.15	1	.06	1773	99.94
				16.15 - 16.35	0	.00	1773	99.94
				16.35 - 16.55	0	.00	1773	99.94
				16.55 - 16.75	1	.06	1774	100.00

### (D3) ARM LENGTH

The vertical distance between the acromion landmark on the tip of the right shoulder and the tip of the middle finger of a subject standing erect with the arms straight at the sides is calculated as follows: ACROMIAL HEIGHT minus WRIST HEIGHT plus HAND LENGTH.



#### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
63.74	25.09	1ST	70.43	27.73
64.71	25.48	2ND	71.42	28.12
65.33	25.72	3RD	72.03	28.36
66.18	26.06	5TH	72.85	28.68
67.50	26.58	10TH	74.12	29.18
68.40	26.93	15TH	74.99	29.52
69.12	27.21	20TH	75.68	29.80
69.74	27.46	25TH	76.29	30.04
70.31	27.68	30TH	76.84	30.25
70.83	27.88	35TH	77.36	30.46
71.32	28.08	40TH	77.86	30.65
71.81	28.27	45TH	78.35	30.85
72.29	28.46	50TH	78.84	31.04
72.77	28.65	55TH	79.33	31.23
73.26	28.84	60TH	79.84	31.43
73.77	29.04	65TH	80.37	31.64
74.31	29.26	70TH	80.93	31.86
74.90	29.49	75TH	81.55	32.11
75.57	29.75	80TH	82.24	32.38
76.34	30.05	85TH	83.05	32.70
77.32	30.44	90TH	84.08	33.10
78.79	31.02	95TH	85.58	33.69
79.76	31.40	97TH	86.53	34.07
80.47	31.68	98TH	87.21	34.33
81.59	32.12	99TH	88.23	34.74

## ARM LENGTH

## FEMALES

<u>CM</u>		<u>INCHES</u>
72.37	MEAN VALUE	28.49
.08	SE (MEAN)	.03
3.84	STD DEVIATION	1.51
.06	SE (STD DEV)	.02
57.90	MINIMUM	22.80
87.10	MAXIMUM	34.29
SYMMETRY---	VETA I	= .12
KURTOSIS---	VETA II	= 3.12
COEF. OF VARIATION		= 5.3%
NUMBER OF SUBJECTS		= 2208

**MALES**

<u>CM</u>		<u>INCHES</u>
78.97	MEAN VALUE	31.09
.09	SE(MEAN)	.04
3.86	STD DEVIATION	1.52
.06	SE(STD DEV)	.03
64.10	MINIMUM	25.24
95.90	MAXIMUM	37.76
SYMMETRY---VETA I	=	.14
KURTOSIS---VETA I	=	3.21
COEF. OF VARIATION	=	4.9%
NUMBER OF SUBJECTS	=	1774

### FREQUENCY TABLE

## FEMALES

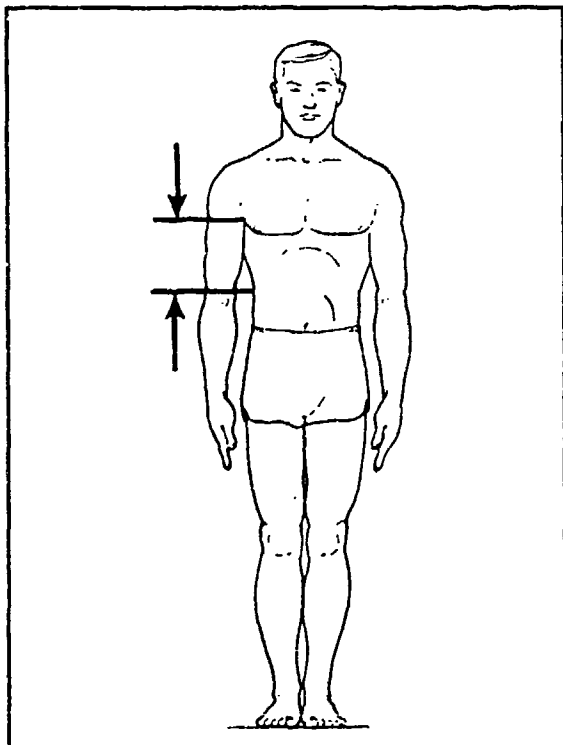
F	FPct	CumF	CumFPct
1	.05	1	.05
0	.00	1	.05
0	.00	1	.05
4	.18	5	.23
7	.32	12	.54
9	.41	21	.95
16	.72	37	1.68
34	1.54	71	3.22
54	2.45	125	5.66
94	4.26	219	9.92
130	5.89	349	15.81
172	7.79	521	23.60
212	9.60	733	33.20
206	9.33	939	42.53
233	10.55	1172	53.08
217	9.83	1389	62.91
201	9.10	1590	72.01
170	7.70	1760	79.71
145	6.57	1905	86.28
101	4.57	2006	90.85
88	3.99	2094	94.84
46	2.08	2140	96.92
23	1.04	2163	97.96
22	1.00	2185	98.96
9	.41	2194	99.37
7	.32	2201	99.68
4	.18	2205	99.86
1	.05	2206	99.91
0	.00	2206	99.91
2	.09	2208	100.00

**MALES**

F	FPct	CumF	CumFPct
1	.06	1	.06
1	.06	2	.11
1	.06	3	.17
0	.00	3	.17
2	.11	5	.28
3	.17	8	.45
12	.68	20	1.13
16	.90	36	2.03
34	1.92	70	3.95
66	3.72	136	7.67
81	4.57	217	12.23
116	6.54	333	18.77
150	8.46	483	27.23
162	9.13	645	36.36
182	10.26	827	46.62
186	10.48	1013	57.10
170	9.58	1183	66.69
164	9.24	1347	75.93
124	6.99	1471	82.92
90	5.07	1561	87.99
64	3.61	1625	91.60
54	3.04	1679	94.64
43	2.42	1722	97.07
27	1.52	1749	98.59
15	.85	1764	99.44
3	.17	1767	99.61
4	.23	1771	99.83
1	.06	1772	99.89
0	.00	1772	99.89
0	.00	1772	99.89
1	.06	1773	99.94
0	.00	1773	99.94
1	.06	1774	100.00

#### (D4) AXILLA-WAIST LENGTH (NATURAL INDENTATION)

The vertical distance between the right anterior-scye-on-the-torso landmark and the level of the waist at its natural indentation is calculated as follows: AXILLA HEIGHT minus WAIST HEIGHT (NATURAL INDENTATION).



#### THE PERCENTILES

##### FEMALES

CM INCHES

13.23 5.21

13.71 5.40

14.02 5.52

14.42 5.68

15.06 5.93

15.51 6.11

15.87 6.25

16.19 6.38

16.49 6.49

16.77 6.60

17.04 6.71

17.31 6.81

17.58 6.92

17.86 7.03

18.14 7.14

18.44 7.26

18.76 7.39

19.11 7.52

19.51 7.68

19.98 7.87

20.57 8.10

21.45 8.44

22.00 8.66

22.39 8.82

22.98 9.05

##### MALES

CM INCHES

14.74 5.80

15.25 6.00

15.58 6.14

16.05 6.32

16.77 6.60

17.27 6.80

17.66 6.95

18.00 7.09

18.31 7.21

18.60 7.32

18.87 7.43

19.13 7.53

19.39 7.63

19.64 7.73

19.90 7.84

20.17 7.94

20.45 8.05

20.75 8.17

21.09 8.30

21.48 8.46

21.96 8.65

22.66 8.92

23.11 9.10

23.43 9.23

23.93 9.42

## AXILLA-WAIST LENGTH (NATURAL INDENTATION)

FEMALES			
<u>CM</u>		<u>INCHES</u>	
17.71	MEAN VALUE	6.97	
.05	SE (MEAN)	.02	
2.15	STD DEVIATION	.85	
.03	SE (STD DEV)	.00	
10.50	MINIMUM	4.13	
26.80	MAXIMUM	10.55	
SYMMETRY----	VETA I	=	.31
KURTOSIS----	VETA II	=	3.11
COEF. OF VARIATION		=	12.1%
NUMBER OF SUBJECTS		=	2208

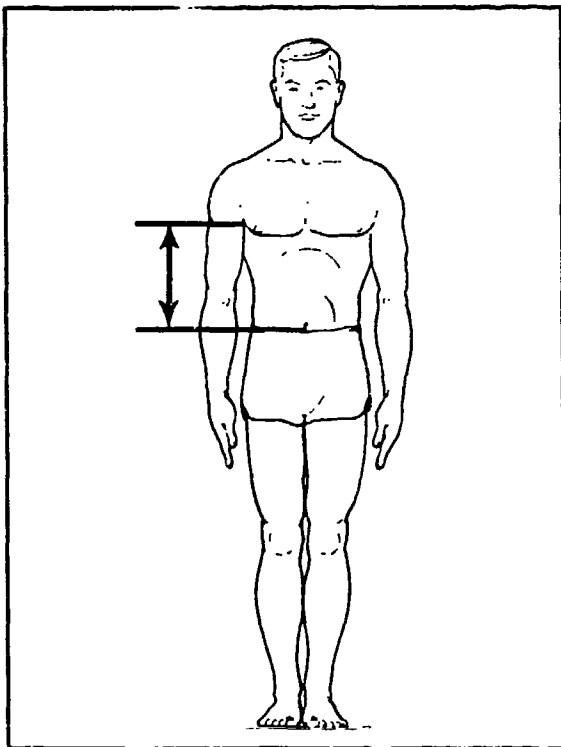
MALES			
<u>CM</u>		<u>INCHES</u>	
19.38	MEAN VALUE	7.63	
.05	SE (MEAN)	.02	
2.00	STD DEVIATION	.79	
.03	SE (STD DEV)	.00	
13.40	MINIMUM	5.28	
27.40	MAXIMUM	10.79	
SYMMETRY----	VETA I	=	.02
KURTOSIS----	VETA II	=	2.90
COEF. OF VARIATION		=	10.3%
NUMBER OF SUBJECTS		=	1774

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct	CumF	CumFPct		
1	.05	1	.05	10.25 -	10.75						
0	.00	1	.05	10.75 -	11.25						
0	.00	1	.05	11.25 -	11.75						
5	.23	6	.27	11.75 -	12.25						
5	.23	11	.50	12.25 -	12.75						
12	.54	23	1.04	12.75 -	13.25						
21	.95	44	1.99	13.25 -	13.75						
44	1.99	88	3.99	13.75 -	14.25						
67	3.03	155	7.02	14.25 -	14.75	1	.06	1	.06		
99	4.48	254	11.50	14.75 -	15.25	5	.28	6	.34		
158	7.16	412	18.66	15.25 -	15.75	12	.68	18	1.01		
152	6.88	564	25.54	15.75 -	16.25	18	1.01	36	2.03		
190	8.61	754	34.15	16.25 -	16.75	30	1.69	66	3.72		
235	10.64	989	44.79	16.75 -	17.25	47	2.65	113	6.37		
186	8.42	1175	53.22	17.25 -	17.75	49	2.76	162	9.13		
189	8.56	1364	61.78	17.75 -	18.25	92	5.19	254	14.32		
175	7.93	1539	69.70	18.25 -	18.75	112	6.31	366	20.63		
152	6.88	1691	76.59	18.75 -	19.25	149	8.40	515	29.03		
140	6.34	1831	82.93	19.25 -	19.75	168	9.47	683	38.50		
116	5.25	1947	88.18	19.75 -	20.25	170	9.58	853	48.08		
63	2.85	2010	91.03	20.25 -	20.75	160	9.02	1013	57.10		
60	2.72	2070	93.75	20.75 -	21.25	160	9.02	1173	66.12		
55	2.49	2125	96.24	21.25 -	21.75	143	8.06	1316	74.18		
36	1.63	2161	97.87	21.75 -	22.25	153	8.62	1469	82.81		
19	.86	2180	98.73	22.25 -	22.75	86	4.85	1555	87.66		
11	.50	2191	99.23	22.75 -	23.25	83	4.68	1638	92.33		
4	.18	2195	99.41	23.25 -	23.75	56	3.16	1694	95.49		
6	.27	2201	99.68	23.75 -	24.25	33	1.86	1727	97.35		
4	.18	2205	99.86	24.25 -	24.75	23	1.30	1750	98.65		
0	.00	2205	99.86	24.75 -	25.25	13	.73	1763	99.38		
1	.05	2206	99.91	25.25 -	25.75	5	.28	1768	99.66		
1	.05	2207	99.95	25.75 -	26.25	3	.17	1771	99.83		
0	.00	2207	99.95	26.25 -	26.75	2	.11	1773	99.94		
1	.05	2208	100.00	26.75 -	27.25	0	.00	1773	99.94		
				27.25 -	27.75	0	.00	1773	99.94		
						1	.06	1774	100.00		



## (D5) AXILLA-WAIST LENGTH (OMPHALION)

The vertical distance between the anterior-scy-on-the-torso landmark and the level of the waist at the navel (omphalion) is calculated as follows: **AXILLA HEIGHT** minus **WAIST HEIGHT (OMPHALION)**.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
20.91	8.23	1ST	21.46	8.45
21.41	8.43	2ND	22.01	8.66
21.72	8.55	3RD	22.35	8.80
22.13	8.71	5TH	22.82	8.98
22.77	8.97	10TH	23.54	9.27
23.20	9.14	15TH	24.02	9.46
23.55	9.27	20TH	24.41	9.61
23.85	9.39	25TH	24.74	9.74
24.12	9.50	30TH	25.05	9.86
24.37	9.60	35TH	25.33	9.97
24.61	9.69	40TH	25.60	10.08
24.85	9.78	45TH	25.86	10.18
25.09	9.88	50TH	26.13	10.29
25.33	9.97	55TH	26.39	10.39
25.57	10.07	60TH	26.67	10.50
25.82	10.17	65TH	26.95	10.61
26.10	10.27	70TH	27.25	10.73
26.39	10.39	75TH	27.59	10.86
26.73	10.52	80TH	27.97	11.01
27.12	10.68	85TH	28.41	11.19
27.63	10.88	90TH	28.99	11.41
28.39	11.18	95TH	29.87	11.76
28.88	11.37	97TH	30.45	11.99
29.25	11.51	98TH	30.89	12.16
29.82	11.74	99TH	31.60	12.44

# AXILLA-WAIST LENGTH (OMPHALION)

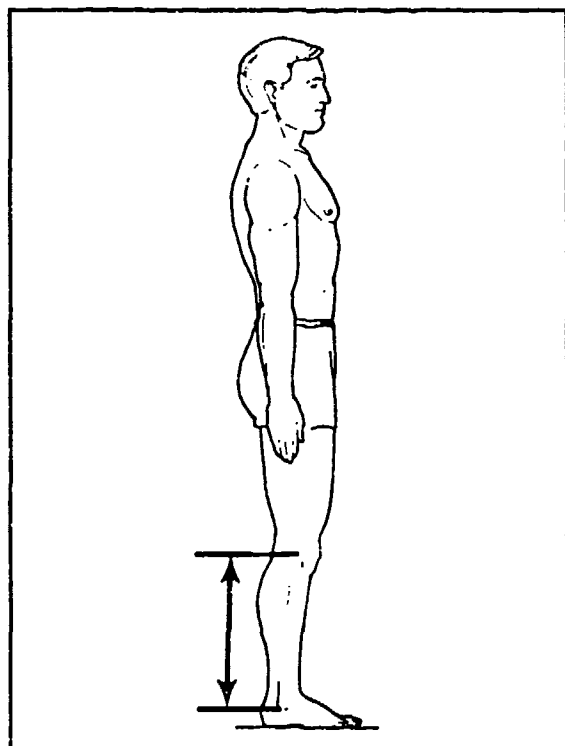
FEMALES			
CM		INCHES	
25.15	MEAN VALUE	9.90	
.04	SE (MEAN)	.02	
1.91	STD DEVIATION	.75	
.03	SE (STD DEV)	.00	
19.40	MINIMUM	7.64	
32.90	MAXIMUM	12.95	
SYMMETRY---VETA I = .18			
KURTOSIS---VETA II = 3.11			
COEF. OF VARIATION = 7.6%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
26.21	MEAN VALUE	10.32	
.05	SE (MEAN)	.02	
2.13	STD DEVIATION	.84	
.04	SE (STD DEV)	.00	
19.00	MINIMUM	7.48	
34.50	MAXIMUM	13.58	
SYMMETRY---VETA I = .21			
KURTOSIS---VETA II = 3.15			
COEF. OF VARIATION = 8.1%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE									
FEMALES				MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct
6	.27	6	.27	18.75 -	19.25	1	.06	1	.06
3	.14	9	.41	19.25 -	19.75	0	.00	1	.06
7	.32	16	.72	19.75 -	20.25	1	.06	2	.11
19	.86	35	1.59	20.25 -	20.75	2	.11	4	.23
30	1.36	65	2.94	20.75 -	21.25	10	.56	14	.79
54	2.45	119	5.39	21.25 -	21.75	11	.62	25	1.41
106	4.80	225	10.19	21.75 -	22.25	19	1.07	44	2.48
127	5.75	352	15.94	22.25 -	22.75	34	1.92	78	4.40
163	7.38	515	23.32	22.75 -	23.25	50	2.82	128	7.22
189	8.56	704	31.88	23.25 -	23.75	89	5.02	217	12.23
230	10.42	934	42.30	23.75 -	24.25	103	5.81	320	18.04
247	11.19	1181	53.49	24.25 -	24.75	126	7.10	446	25.14
225	10.19	1406	63.68	24.75 -	25.25	160	9.02	606	34.16
199	9.01	1605	72.69	25.25 -	25.75	155	8.74	761	42.90
170	7.70	1775	80.39	25.75 -	26.25	155	8.74	916	51.63
131	5.93	1906	86.32	26.25 -	26.75	170	9.58	1086	61.22
102	4.62	2008	90.94	26.75 -	27.25	147	8.29	1233	69.50
74	3.35	2082	94.29	27.25 -	27.75	139	7.84	1372	77.34
53	2.40	2135	96.69	27.75 -	28.25	107	6.03	1479	83.37
27	1.22	2162	97.92	28.25 -	28.75	97	5.47	1576	88.84
22	1.00	2184	98.91	28.75 -	29.25	59	3.33	1635	92.16
8	.36	2192	99.28	29.25 -	29.75	47	2.65	1682	94.81
8	.36	2200	99.64	29.75 -	30.25	28	1.58	1710	96.39
5	.23	2205	99.86	30.25 -	30.75	22	1.24	1732	97.63
2	.09	2207	99.95	30.75 -	31.25	17	.96	1749	98.59
0	.00	2207	99.95	31.25 -	31.75	11	.62	1760	99.21
0	.00	2207	99.95	31.75 -	32.25	5	.28	1765	99.49
0	.00	2207	99.95	32.25 -	32.75	2	.11	1767	99.61
1	.05	2208	100.00	32.75 -	33.25	5	.28	1772	99.89
				33.25 -	33.75	1	.06	1773	99.94
				33.75 -	34.25	0	.00	1773	99.94
				34.25 -	34.75	1	.06	1774	100.00

## (D6) CALF LINK

The vertical distance between the lateral femoral epicondyle landmark on the side of the right knee and the lateral malleolus landmark on the outside of the right ankle is calculated as follows: LATERAL FEMORAL EPICONDYLE HEIGHT minus LATERAL MALLEOLUS HEIGHT.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
34.84	13.72	1ST	38.07	14.99	
35.41	13.94	2ND	38.72	15.24	
35.78	14.09	3RD	39.11	15.40	
36.28	14.28	5TH	39.63	15.60	
37.07	14.59	10TH	40.42	15.91	
37.60	14.80	15TH	40.95	16.12	
38.04	14.97	20TH	41.38	16.29	
38.41	15.12	25TH	41.75	16.44	
38.76	15.26	30TH	42.10	16.57	
39.08	15.38	35TH	42.42	16.70	
39.38	15.50	40TH	42.73	16.82	
39.68	15.62	45TH	43.03	16.94	
39.98	15.74	50TH	43.34	17.06	
40.28	15.86	55TH	43.65	17.19	
40.59	15.98	60TH	43.98	17.31	
40.91	16.10	65TH	44.31	17.45	
41.25	16.24	70TH	44.67	17.59	
41.62	16.38	75TH	45.06	17.74	
42.03	16.55	80TH	45.51	17.92	
42.52	16.74	85TH	46.02	18.12	
43.14	16.98	90TH	46.67	18.38	
44.05	17.34	95TH	47.62	18.75	
44.64	17.58	97TH	48.21	18.98	
45.08	17.75	98TH	48.62	19.14	
45.75	18.01	99TH	49.22	19.38	

# CALF LINK

## FEMALES

CM		INCHES
40.04	MEAN VALUE	15.77
.05	SE(MEAN)	.02
2.36	STD DEVIATION	.93
.04	SE(STD DEV)	.00
29.30	MINIMUM	11.54
50.90	MAXIMUM	20.04

SYMMETRY---VETA I = .16  
 KURTOSIS---VETA II = 3.23  
 COEF. OF VARIATION = 5.9%  
 NUMBER OF SUBJECTS = 2208

## MALES

CM		INCHES
43.45	MEAN VALUE	17.11
.06	SE(MEAN)	.02
2.45	STD DEVIATION	.96
.04	SE(STD DEV)	.02
33.80	MINIMUM	13.31
53.30	MAXIMUM	20.98

SYMMETRY---VETA I = .19  
 KURTOSIS---VETA II = 3.14  
 COEF. OF VARIATION = 5.6%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

P	FPct	CumF	CumFPct
1	.05	1	.05
0	.00	1	.05
0	.00	1	.05
0	.00	1	.05
0	.00	1	.05
0	.00	1	.05
1	.05	2	.09
0	.00	2	.09
2	.09	4	.18
7	.32	11	.50
9	.41	20	.91
14	.63	34	1.54
28	1.27	62	2.81
47	2.13	109	4.94
48	2.17	157	7.11
92	4.17	249	11.28
120	5.43	369	16.71
131	5.93	500	22.64
167	7.56	667	30.21
170	7.70	837	37.91
180	8.15	1017	46.06
185	8.38	1202	54.44
176	7.97	1378	62.41
163	7.38	1541	69.79
153	6.93	1694	76.72
131	5.93	1825	82.65
104	4.71	1929	87.36
82	3.71	2011	91.08
60	2.72	2071	93.80
42	1.90	2113	95.70
36	1.63	2149	97.33
23	1.04	2172	98.37
14	.63	2186	99.00
9	.41	2195	99.41
3	.14	2198	99.55
5	.23	2203	99.77
1	.05	2204	99.82
2	.09	2206	99.91
1	.05	2207	99.95
0	.00	2207	99.95
0	.00	2207	99.95
0	.00	2207	99.95
1	.05	2208	100.00

### CENTIMETERS

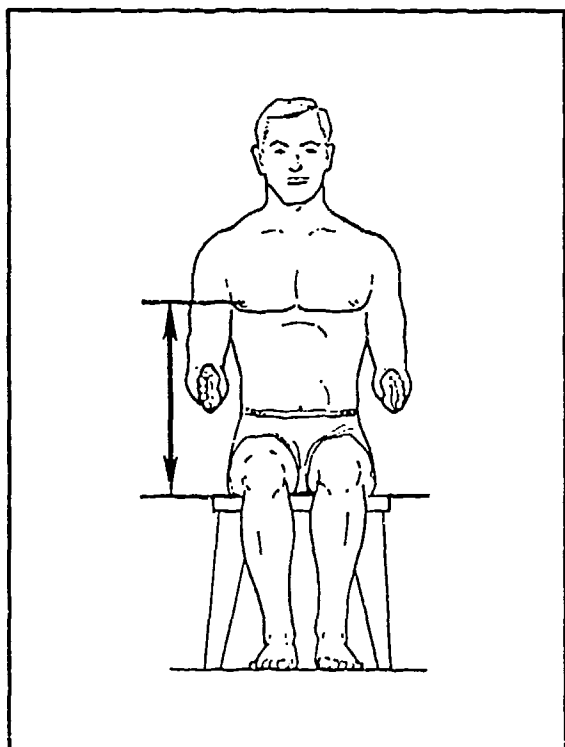
29.25	-	29.75
29.75	-	30.25
30.25	-	30.75
30.75	-	31.25
31.25	-	31.75
31.75	-	32.25
32.25	-	32.75
32.75	-	33.25
33.25	-	33.75
33.75	-	34.25
34.25	-	34.75
34.75	-	35.25
35.25	-	35.75
35.75	-	36.25
36.25	-	36.75
36.75	-	37.25
37.25	-	37.75
37.75	-	38.25
38.25	-	38.75
38.75	-	39.25
39.25	-	39.75
39.75	-	40.25
40.25	-	40.75
40.75	-	41.25
41.25	-	41.75
41.75	-	42.25
42.25	-	42.75
42.75	-	43.25
43.25	-	43.75
43.75	-	44.25
44.25	-	44.75
44.75	-	45.25
45.25	-	45.75
45.75	-	46.25
46.25	-	46.75
46.75	-	47.25
47.25	-	47.75
47.75	-	48.25
48.25	-	48.75
48.75	-	49.25
49.25	-	49.75
49.75	-	50.25
50.25	-	50.75
50.75	-	51.25
51.25	-	51.75
51.75	-	52.25
52.25	-	52.75
52.75	-	53.25
53.25	-	53.75

### MALES

P	FPct	CumF	CumFPct
1	.06	1	.06
0	.00	1	.06
0	.00	1	.06
0	.00	1	.06
1	.06	2	.11
2	.11	4	.23
5	.28	9	.51
5	.28	14	.79
9	.51	23	1.30
10	.56	33	1.86
24	1.35	57	3.21
35	1.97	92	5.19
60	3.38	152	8.57
79	4.45	231	13.02
103	5.81	334	18.83
118	6.65	452	25.48
129	7.27	581	32.75
157	8.85	738	41.60
116	6.54	854	48.14
152	8.57	1006	56.71
113	6.37	1119	63.08
139	7.84	1258	70.91
104	5.86	1362	76.78
91	5.13	1453	81.91
82	4.62	1535	86.53
69	3.89	1604	90.42
54	3.04	1658	93.46
42	2.37	1700	95.83
32	1.80	1732	97.63
12	.68	1744	98.31
11	.62	1755	98.93
6	.34	1761	99.27
7	.39	1768	99.66
0	.00	1768	99.66
3	.17	1771	99.83
0	.00	1771	99.83
1	.06	1772	99.89
0	.00	1772	99.89
0	.00	1772	99.89
2	.11	1774	100.00

## (D7) CHEST HEIGHT, SITTING

The vertical distance between a sitting surface and the right nipple on men or the right bustpoint on women, sitting erect, is calculated as follows: SITTING HEIGHT minus (STATURE minus CHEST HEIGHT).



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
32.81	12.92	1ST	37.64	14.82	
33.84	13.32	2ND	38.33	15.09	
34.43	13.56	3RD	38.77	15.26	
35.19	13.85	5TH	39.37	15.50	
36.26	14.28	10TH	40.28	15.86	
36.94	14.55	15TH	40.89	16.10	
37.47	14.75	20TH	41.37	16.29	
37.91	14.93	25TH	41.78	16.45	
38.31	15.08	30TH	42.14	16.59	
38.67	15.22	35TH	42.48	16.72	
39.01	15.36	40TH	42.79	16.85	
39.35	15.49	45TH	43.10	16.97	
39.68	15.62	50TH	43.40	17.09	
40.02	15.75	55TH	43.70	17.20	
40.36	15.89	60TH	44.00	17.32	
40.71	16.03	65TH	44.31	17.45	
41.09	16.18	70TH	44.64	17.58	
41.50	16.34	75TH	45.00	17.72	
41.97	16.52	80TH	45.41	17.88	
42.51	16.74	85TH	45.88	18.06	
43.20	17.01	90TH	46.49	18.30	
44.21	17.41	95TH	47.44	18.68	
44.86	17.66	97TH	48.08	18.93	
45.32	17.84	98TH	48.57	19.12	
46.00	18.11	99TH	49.39	19.44	

# CHEST HEIGHT, SITTING

## FEMALES

CM		INCHES
39.70	MEAN VALUE	15.63
.06	SE (MEAN)	.02
2.74	STD DEVIATION	1.08
.04	SE (STD DEV)	.02
30.20	MINIMUM	11.89
50.30	MAXIMUM	19.80

SYMMETRY---VETA I = -.07  
 KURTOSIS---VETA II = 3.21  
 COEF. OF VARIATION = 6.9%  
 NUMBER OF SUBJECTS = 2208

## MALES

CM		INCHES
43.40	MEAN VALUE	17.09
.06	SE (MEAN)	.02
2.45	STD DEVIATION	.96
.04	SE (STD DEV)	.02
34.70	MINIMUM	13.66
51.60	MAXIMUM	20.31

SYMMETRY---VETA I = .03  
 KURTOSIS---VETA II = 3.14  
 COEF. OF VARIATION = 5.6%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
1	.05	1	.05
1	.05	2	.09
4	.18	6	.27
2	.09	8	.36
6	.27	14	.63
7	.32	21	.95
12	.54	33	1.49
8	.36	41	1.86
13	.59	54	2.45
32	1.45	86	3.89
28	1.27	114	5.16
48	2.17	162	7.34
62	2.81	224	10.14
75	3.40	299	13.54
95	4.30	394	17.84
108	4.89	502	22.74
145	6.57	647	29.30
145	6.57	792	35.87
150	6.79	942	42.66
188	8.51	1130	51.18
169	7.65	1299	58.83
149	6.75	1448	65.58
143	6.48	1591	72.06
138	6.25	1729	78.31
98	4.44	1827	82.74
94	4.26	1921	87.00
74	3.35	1995	90.35
57	2.58	2052	92.93
47	2.13	2099	95.06
36	1.63	2135	96.69
27	1.22	2162	97.92
18	.82	2180	98.73
12	.54	2192	99.28
5	.23	2197	99.50
5	.23	2202	99.73
5	.23	2207	99.95
0	.00	2207	99.95
0	.00	2207	99.95
0	.00	2207	99.95
0	.00	2207	99.95
0	.00	2207	99.95
1	.05	2208	100.00

### CENTIMETERS

29.75 -	30.25
30.25 -	30.75
30.75 -	31.25
31.25 -	31.75
31.75 -	32.25
32.25 -	32.75
32.75 -	33.25
33.25 -	33.75
33.75 -	34.25
34.25 -	34.75
34.75 -	35.25
35.25 -	35.75
35.75 -	36.25
36.25 -	36.75
36.75 -	37.25
37.25 -	37.75
37.75 -	38.25
38.25 -	38.75
38.75 -	39.25
39.25 -	39.75
39.75 -	40.25
40.25 -	40.75
40.75 -	41.25
41.25 -	41.75
41.75 -	42.25
42.25 -	42.75
42.75 -	43.25
43.25 -	43.75
43.75 -	44.25
44.25 -	44.75
44.75 -	45.25
45.25 -	45.75
45.75 -	46.25
46.25 -	46.75
46.75 -	47.25
47.25 -	47.75
47.75 -	48.25
48.25 -	48.75
48.75 -	49.25
49.25 -	49.75
49.75 -	50.25
50.25 -	50.75
50.75 -	51.25
51.25 -	51.75

### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
1	.06	2	.11
0	.00	2	.11
2	.11	4	.23
3	.17	7	.39
3	.17	10	.56
11	.62	21	1.18
10	.56	31	1.75
21	1.18	52	2.93
25	1.41	77	4.34
38	2.14	115	6.48
52	2.93	167	9.41
78	4.40	245	13.81
88	4.96	333	18.77
107	6.03	440	24.80
126	7.10	566	31.91
135	7.61	701	39.52
144	8.12	845	47.63
145	8.17	990	55.81
150	8.46	1140	64.26
126	7.10	1266	71.36
113	6.37	1379	77.73
103	5.81	1482	83.54
77	4.34	1559	87.88
59	3.33	1618	91.21
62	3.49	1680	94.70
29	1.63	1709	96.34
22	1.24	1731	97.58
13	.73	1744	98.31
9	.51	1753	98.82
8	.45	1761	99.27
8	.45	1769	99.72
0	.00	1769	99.72
3	.17	1772	99.89
2	.11	1774	100.00

## (D8) CHEST-WAIST DROP (NATURAL INDENTATION)

The difference between the circumference of the chest and the circumference of the waist at the level of its natural indentation is calculated as follows: CHEST CIRCUMFERENCE minus WAIST CIRCUMFERENCE (NATURAL INDENTATION).

THE PERCENTILES					
FEMALES			MALES		
CM	INCHES		CM	INCHES	
10.30	4.06	1ST	6.66	2.62	
11.26	4.43	2ND	7.75	3.05	
11.87	4.67	3RD	8.43	3.32	
12.69	5.00	5TH	9.32	3.67	
13.93	5.49	10TH	10.64	4.19	
14.76	5.81	15TH	11.52	4.53	
15.41	6.07	20TH	12.20	4.80	
15.96	6.28	25TH	12.78	5.03	
16.45	6.48	30TH	13.30	5.24	
16.91	6.66	35TH	13.79	5.43	
17.34	6.83	40TH	14.24	5.61	
17.75	6.99	45TH	14.68	5.78	
18.16	7.15	50TH	15.12	5.95	
18.56	7.31	55TH	15.56	6.12	
18.98	7.47	60TH	16.00	6.30	
19.40	7.64	65TH	16.46	6.48	
19.85	7.82	70TH	16.95	6.67	
20.34	8.01	75TH	17.49	6.88	
20.89	8.23	80TH	18.09	7.12	
21.54	8.48	85TH	18.80	7.40	
22.37	8.81	90TH	19.70	7.76	
23.63	9.30	95TH	21.07	8.30	
24.48	9.64	97TH	21.99	8.66	
25.12	9.89	98TH	22.67	8.92	
26.17	10.30	99TH	23.76	9.35	

# **CHEST-WAIST DROP (NATURAL INDENTATION)**

<b>FEMALES</b>		
<u>CM</u>		<u>INCHES</u>
18.16	MEAN VALUE	7.15
.07	SE (MEAN)	.03
3.31	STD DEVIATION	1.30
.05	SE (STD DEV)	.02
5.80	MINIMUM	2.28
31.00	MAXIMUM	12.20
SYMMETRY----	VETA I	= .05
KURTOSIS----	VETA II	= 3.27
COEF. OF VARIATION		= 18.2%
NUMBER OF SUBJECTS		= 2208

<b>MALES</b>		
<u>CM</u>		<u>INCHES</u>
15.15	MEAN VALUE	5.96
.08	SE (MEAN)	.03
3.55	STD DEVIATION	1.40
.06	SE (STD DEV)	.02
4.20	MINIMUM	1.65
29.70	MAXIMUM	11.69
SYMMETRY----	VETA I	= .08
KURTOSIS----	VETA II	= 3.28
COEF. OF VARIATION		= 23.4%
NUMBER OF SUBJECTS		= 1774

<b>FREQUENCY TABLE</b>									
<b>FEMALES</b>					<b>MALES</b>				
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>	F	FPct	CumF	CumFPct	
				3.75 - 4.25	1	.06	1	.06	
				4.25 - 4.75	0	.00	1	.06	
				4.75 - 5.25	4	.23	5	.28	
				5.25 - 5.75	3	.17	8	.45	
				5.75 - 6.25	7	.39	15	.85	
				6.25 - 6.75	3	.17	18	1.01	
				6.75 - 7.25	8	.45	26	1.47	
				7.25 - 7.75	9	.51	35	1.97	
				7.75 - 8.25	12	.68	47	2.65	
				8.25 - 8.75	18	1.01	65	3.66	
				8.75 - 9.25	17	.96	82	4.62	
				9.25 - 9.75	29	1.63	111	6.26	
				9.75 - 10.25	38	2.14	149	8.40	
				10.25 - 10.75	43	2.42	192	10.82	
				10.75 - 11.25	47	2.65	239	13.47	
				11.25 - 11.75	58	3.27	297	16.74	
				11.75 - 12.25	55	3.10	352	19.84	
				12.25 - 12.75	72	4.06	424	23.90	
				12.75 - 13.25	82	4.62	506	28.52	
				13.25 - 13.75	80	4.96	594	33.48	
				13.75 - 14.25	103	5.81	697	39.29	
				14.25 - 14.75	99	5.58	796	44.87	
				14.75 - 15.25	116	6.54	912	51.41	
				15.25 - 15.75	109	6.14	1021	57.55	
				15.75 - 16.25	116	6.54	1137	64.09	
				16.25 - 16.75	96	5.41	1233	69.50	
				16.75 - 17.25	69	3.89	1302	73.39	
				17.25 - 17.75	82	4.62	1384	78.02	
				17.75 - 18.25	67	3.78	1451	81.79	
				18.25 - 18.75	49	2.76	1500	84.55	
				18.75 - 19.25	61	3.44	1561	87.99	
				19.25 - 19.75	47	2.65	1608	90.64	
				19.75 - 20.25	26	1.47	1634	92.11	
				20.25 - 20.75	29	1.63	1663	93.74	
				20.75 - 21.25	29	1.63	1692	95.38	
				21.25 - 21.75	21	1.18	1713	96.56	
				21.75 - 22.25	14	.79	1727	97.35	
				22.25 - 22.75	11	.62	1738	97.97	
				22.75 - 23.25	16	.90	1754	98.87	
				23.25 - 23.75	5	.28	1759	99.15	
				23.75 - 24.25	5	.28	1764	99.44	
				24.25 - 24.75	4	.23	1768	99.66	
				24.75 - 25.25	0	.00	1768	99.66	
				25.25 - 25.75	2	.11	1770	99.77	
				25.75 - 26.25	0	.00	1770	99.77	
				26.25 - 26.75	0	.00	1770	99.77	
				26.75 - 27.25	0	.00	1770	99.77	
				27.25 - 27.75	0	.00	1770	99.77	
				27.75 - 28.25	3	.17	1773	99.94	
				28.25 - 28.75	0	.00	1773	99.94	
				28.75 - 29.25	0	.00	1773	99.94	
				29.25 - 29.75	1	.06	1774	100.00	
				29.75 - 30.25					
				30.25 - 30.75					
				30.75 - 31.25					



## (D9) CHEST-WAIST DROP (OMPHALION)

The difference between the circumference of the chest and the circumference of the waist at the level of the navel (omphalion) is calculated as follows: CHEST CIRCUMFERENCE minus WAIST CIRCUMFERENCE (OMPHALION).

THE PERCENTILES				
FEMALES			MALES	
CM	INCHES		CM	INCHES
-2.76	-1.09	1ST	1.28	.50
-.69	-.27	2ND	2.83	1.11
.59	.23	3RD	3.77	1.48
2.28	.90	5TH	5.01	1.97
4.75	1.87	10TH	6.83	2.69
6.31	2.48	15TH	8.03	3.16
7.48	2.95	20TH	8.97	3.53
8.45	3.33	25TH	9.77	3.85
9.28	3.65	30TH	10.48	4.13
10.02	3.94	35TH	11.13	4.38
10.69	4.21	40TH	11.76	4.63
11.33	4.46	45TH	12.36	4.86
11.94	4.70	50TH	12.95	5.10
12.53	4.93	55TH	13.54	5.33
13.11	5.16	60TH	14.14	5.57
13.70	5.39	65TH	14.76	5.81
14.31	5.63	70TH	15.42	6.07
14.96	5.89	75TH	16.12	6.35
15.67	6.17	80TH	16.91	6.66
16.51	6.50	85TH	17.81	7.01
17.58	6.92	90TH	18.95	7.46
19.27	7.59	95TH	20.58	8.10
20.48	8.06	97TH	21.60	8.51
21.44	8.44	98TH	22.33	8.79
23.13	9.10	99TH	23.41	9.22

# CHEST-WAIST DROP (OMPHALION)

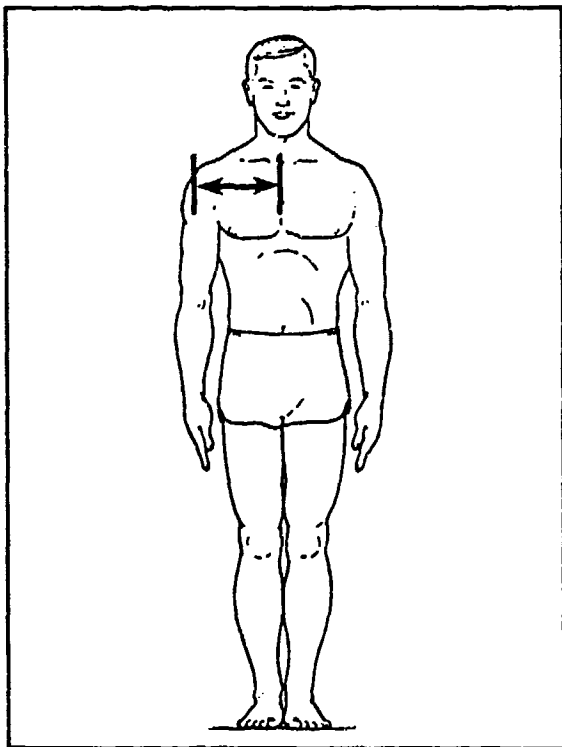
FEMALES			
<u>CM</u>		<u>INCHES</u>	
11.52	MEAN VALUE	4.54	
.11	SE (MEAN)	.04	
5.17	STD DEVIATION	2.03	
.08	SE (STD DEV)	.03	
-8.80	MINIMUM	-3.46	
27.40	MAXIMUM	10.79	
SYMMETRY---VETA I = -.40			
KURTOSIS---VETA II = 3.59			
COEF. OF VARIATION = 44.8%			
NUMBER OF SUBJECTS = 2208			

MALES			
<u>CM</u>		<u>INCHES</u>	
12.89	MEAN VALUE	5.08	
.11	SE (MEAN)	.04	
4.71	STD DEVIATION	1.86	
.08	SE (STD DEV)	.03	
-3.80	MINIMUM	-1.50	
28.10	MAXIMUM	11.06	
SYMMETRY---VETA I = -.10			
KURTOSIS---VETA II = 3.06			
COEF. OF VARIATION = 36.5%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct	CumF	CumFPct		
1	.05	1	.05	-9.45	-8.45						
1	.05	2	.09	-8.45	-7.45						
1	.05	3	.14	-7.45	-6.45						
3	.14	6	.27	-6.45	-5.45						
7	.32	13	.59	-5.45	-4.45						
3	.14	16	.72	-4.45	-3.45						
4	.18	20	.91	-3.45	-2.45						
15	.68	35	1.59	-2.45	-1.45						
13	.59	48	2.17	-1.45	-.45						
19	.86	67	3.03	-.45	.55						
21	.95	88	3.99	.55	1.55						
29	1.31	117	5.30	1.55	2.55	1	.06	1	.06		
41	1.86	158	7.16	2.55	3.55	2	.11	3	.17		
61	2.76	219	9.92	3.55	4.55	1	.06	4	.23		
57	2.58	276	12.50	4.55	5.55	4	.23	8	.45		
60	2.72	336	15.22	5.55	6.55	2	.11	10	.56		
111	5.03	447	20.24	6.55	7.55	8	.45	18	1.01		
109	4.94	556	25.18	7.55	8.55	13	.73	31	1.75		
141	6.39	697	31.57	8.55	9.55	18	1.01	49	2.76		
148	6.70	845	38.27	9.55	10.55	24	1.35	73	4.11		
190	8.61	1035	46.88	10.55	11.55	31	1.75	104	5.86		
193	8.74	1228	55.62	11.55	12.55	41	2.31	145	8.17		
202	9.15	1430	64.76	12.55	13.55	74	4.17	219	12.34		
167	7.56	1597	72.33	13.55	14.55	90	5.07	309	17.42		
148	6.70	1745	79.03	14.55	15.55	121	6.82	430	24.24		
129	5.84	1874	84.87	15.55	16.55	125	7.05	555	31.29		
108	4.89	1982	89.76	16.55	17.55	137	7.72	692	39.01		
78	3.53	2060	93.30	17.55	18.55	144	8.12	836	47.13		
53	2.40	2113	95.70	18.55	19.55	132	7.44	968	54.57		
27	1.22	2140	96.92	19.55	20.55	149	8.40	1117	62.97		
27	1.22	2167	98.14	20.55	21.55	132	7.44	1249	70.41		
17	.77	2184	98.91	21.55	22.55	123	6.93	1372	77.34		
4	.18	2188	99.09	22.55	23.55	106	5.98	1478	83.31		
8	.36	2196	99.46	23.55	24.55	97	5.47	1575	88.78		
7	.32	2203	99.77	24.55	25.55	65	3.66	1640	92.45		
1	.05	2204	99.82	25.55	26.55	49	2.76	1689	95.21		
4	.18	2208	100.00	26.55	27.55	33	1.86	1722	97.07		
				27.55	28.55	22	1.24	1744	98.31		
						16	.90	1761	99.21		
						6	.34	1766	99.55		
						2	.11	1768	99.66		
						1	.06	1769	99.72		
						3	.17	1772	99.89		
						2	.11	1774	100.00		

## (D10) CLAVICLE LINK

The distance between the midline of the body and the acromion landmark on the tip of the right shoulder is calculated as one-half of BIACROMIAL BREADTH.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
15.89	6.26	1ST	17.76	6.99
16.20	6.38	2ND	17.98	7.08
16.39	6.45	3RD	18.12	7.13
16.63	6.55	5TH	18.33	7.22
16.98	6.69	10TH	18.65	7.34
17.21	6.77	15TH	18.88	7.43
17.38	6.84	20TH	19.06	7.50
17.53	6.90	25TH	19.21	7.56
17.66	6.95	30TH	19.35	7.62
17.79	7.00	35TH	19.48	7.67
17.90	7.05	40TH	19.60	7.72
18.01	7.09	45TH	19.72	7.76
18.12	7.13	50TH	19.83	7.81
18.23	7.18	55TH	19.95	7.85
18.34	7.22	60TH	20.06	7.90
18.45	7.27	65TH	20.18	7.95
18.57	7.31	70TH	20.31	7.99
18.70	7.36	75TH	20.44	8.05
18.85	7.42	80TH	20.59	8.11
19.01	7.49	85TH	20.76	8.17
19.22	7.57	90TH	20.98	8.26
19.51	7.68	95TH	21.30	8.39
19.69	7.75	97TH	21.51	8.47
19.82	7.80	98TH	21.66	8.53
20.00	7.87	99TH	21.92	8.63

# CLAVICLE LINK

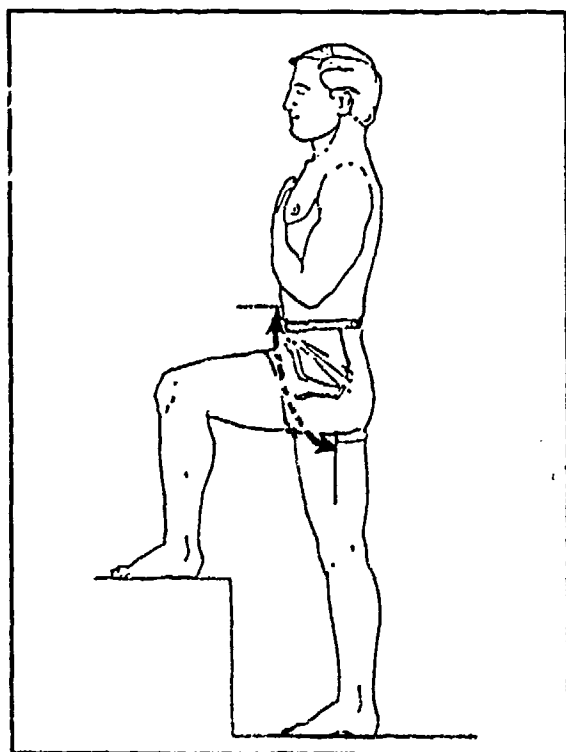
FEMALES			
CM		INCHES	
18.11	MEAN VALUE	7.13	
.02	SE(MEAN)	.00	
.87	STD DEVIATION	.34	
.00	SE(STD DEV)	.00	
15.00	MINIMUM	5.91	
20.80	MAXIMUM	8.19	
SYMMETRY---VETA I = -.16			
KURTOSIS---VETA II = 3.06			
COEF. OF VARIATION = 4.8%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
19.82	MEAN VALUE	7.80	
.02	SE(MEAN)	.00	
.90	STD DEVIATION	.35	
.02	SE(STD DEV)	.00	
16.50	MINIMUM	6.50	
22.50	MAXIMUM	8.86	
SYMMETRY---VETA I = -.05			
KURTOSIS---VETA II = 2.91			
COEF. OF VARIATION = 4.5%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	14.95 -	15.15	1	.06	1	.06		
2	.09	3	.14	15.15 -	15.35	0	.00	1	.06		
4	.18	7	.32	15.35 -	15.55	1	.06	2	.11		
9	.41	16	.72	15.55 -	15.75	1	.06	3	.17		
7	.32	23	1.04	15.75 -	15.95	2	.11	5	.28		
24	1.09	47	2.13	15.95 -	16.15	6	.34	11	.62		
11	.50	58	2.63	16.15 -	16.35	5	.28	16	.90		
33	1.49	91	4.12	16.35 -	16.55	20	1.13	36	2.03		
42	1.90	133	6.02	16.55 -	16.75	19	1.07	55	3.10		
57	2.58	190	8.61	16.75 -	16.95	34	1.92	89	5.02		
103	4.66	293	13.27	16.95 -	17.15	54	3.04	143	8.06		
123	5.57	416	18.84	17.15 -	17.35	70	3.95	213	12.01		
145	6.57	561	25.41	17.35 -	17.55	80	4.51	293	16.52		
178	8.06	739	33.47	17.55 -	17.75	114	6.43	407	22.94		
190	8.61	929	42.07	17.75 -	17.95	136	7.67	543	30.61		
219	9.92	1148	51.99	17.95 -	18.15	127	7.16	670	37.77		
216	9.78	1364	61.78	18.15 -	18.35	161	9.08	831	46.84		
171	7.74	1535	69.52	18.35 -	18.55	128	7.22	959	54.06		
145	6.57	1680	76.09	18.55 -	18.75	163	9.19	1122	63.25		
134	6.07	1814	82.16	18.75 -	18.95	155	8.74	1277	71.98		
127	5.75	1941	87.91	18.95 -	19.15	126	7.10	1403	79.09		
105	4.76	2046	92.66	19.15 -	19.35	109	6.14	1512	85.23		
71	3.22	2117	95.88	19.35 -	19.55	81	4.57	1593	89.80		
42	1.90	2159	97.78	19.55 -	19.75	56	3.16	1649	92.95		
22	1.00	2181	98.78	19.75 -	19.95	44	2.48	1693	95.43		
14	.63	2195	99.41	19.95 -	20.15	34	1.92	1727	97.35		
4	.18	2199	99.59	20.15 -	20.35	19	1.07	1746	98.42		
4	.18	2203	99.77	20.35 -	20.55	13	.73	1759	99.15		
4	.18	2207	99.95	20.55 -	20.75	11	.62	1770	99.77		
1	.05	2208	100.00	20.75 -	20.95	1	.06	1771	99.83		
				20.95 -	21.15	3	.17	1774	100.00		
				21.15 -	21.35						
				21.35 -	21.55						
				21.55 -	21.75						
				21.75 -	21.95						
				21.95 -	22.15						
				22.15 -	22.35						
				22.35 -	22.55						

# (D11) CROTCH LENGTH, ANTERIOR (NATURAL INDENTATION)

The surface distance between the inner thigh landmark and the abdomen at the level of the waist at its natural indentation of a subject standing with one leg on a step is calculated as follows: CROTCH LENGTH (NATURAL INDENTATION) minus CROTCH LENGTH, POSTERIOR (NATURAL INDENTATION).



## THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
29.98	11.80	1ST	30.73	12.10
30.70	12.09	2ND	31.46	12.39
31.17	12.27	3RD	31.92	12.57
31.81	12.52	5TH	32.55	12.81
32.82	12.92	10TH	33.54	13.20
33.52	13.20	15TH	34.24	13.48
34.08	13.42	20TH	34.81	13.71
34.57	13.61	25TH	35.33	13.91
35.02	13.79	30TH	35.80	14.10
35.43	13.95	35TH	36.25	14.27
35.83	14.11	40TH	36.70	14.45
36.22	14.26	45TH	37.13	14.62
36.62	14.42	50TH	37.58	14.80
37.01	14.57	55TH	38.04	14.97
37.42	14.73	60TH	38.51	15.16
37.85	14.90	65TH	39.01	15.36
38.31	15.08	70TH	39.54	15.57
38.82	15.28	75TH	40.14	15.80
39.40	15.51	80TH	40.82	16.07
40.08	15.78	85TH	41.62	16.39
40.99	16.14	90TH	42.65	16.79
42.40	16.69	95TH	44.20	17.40
43.37	17.07	97TH	45.21	17.80
44.11	17.37	98TH	45.93	18.08
45.33	17.85	99TH	47.05	18.52

# CROTCH LENGTH, ANTERIOR (NATURAL INDENTATION)

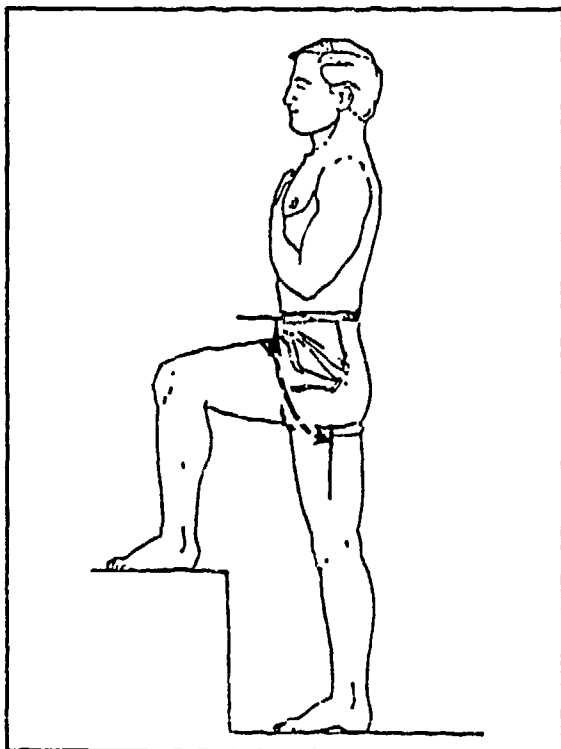
FEMALES			
CM		INCHES	
36.80	MEAN VALUE	14.49	
.07	SE (MEAN)	.03	
3.22	STD DEVIATION	1.27	
.05	SE (STD DEV)	.02	
27.20	MINIMUM	10.71	
50.00	MAXIMUM	19.69	
SYMMETRY---VETA I = .34			
KURTOSIS---VETA II = 3.24			
COEF. OF VARIATION = 8.8%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
37.87	MEAN VALUE	14.91	
.08	SE (MEAN)	.03	
3.57	STD DEVIATION	1.40	
.06	SE (STD DEV)	.02	
26.70	MINIMUM	10.51	
50.80	MAXIMUM	20.00	
SYMMETRY---VETA I = .41			
KURTOSIS---VETA II = 3.12			
COEF. OF VARIATION = 9.4%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	26.25 -	26.75	1	.06	1	.06		
2	.09	3	.14	26.75 -	27.25	0	.00	1	.06		
0	.00	3	.14	27.25 -	27.75	0	.00	1	.06		
3	.14	6	.27	27.75 -	28.25	2	.11	3	.17		
4	.18	10	.45	28.25 -	28.75	0	.00	3	.17		
8	.36	18	.82	28.75 -	29.25	3	.17	6	.34		
10	.45	28	1.27	29.25 -	29.75	1	.06	7	.39		
17	.77	45	2.04	29.75 -	30.25	4	.23	11	.62		
24	1.09	69	3.13	30.25 -	30.75	6	.34	17	.96		
36	1.63	105	4.76	30.75 -	31.25	14	.79	31	1.75		
42	1.90	147	6.66	31.25 -	31.75	15	.85	46	2.59		
64	2.90	211	9.56	31.75 -	32.25	23	1.30	69	3.89		
77	3.49	288	13.04	32.25 -	32.75	34	1.92	103	5.81		
91	4.12	379	17.16	32.75 -	33.25	36	2.03	139	7.84		
86	3.89	465	21.06	33.25 -	33.75	64	3.61	203	11.44		
121	5.48	586	26.54	33.75 -	34.25	65	3.66	268	15.11		
150	6.79	736	33.33	34.25 -	34.75	63	3.55	331	18.66		
120	5.43	856	38.77	34.75 -	35.25	91	5.13	422	23.79		
140	6.34	996	45.11	35.25 -	35.75	103	5.81	525	29.59		
161	7.29	1157	52.40	35.75 -	36.25	94	5.30	619	34.89		
141	6.39	1298	58.79	36.25 -	36.75	110	6.20	729	41.09		
119	5.39	1417	64.18	36.75 -	37.25	93	5.24	822	46.34		
103	4.66	1520	68.84	37.25 -	37.75	95	5.36	917	51.69		
120	5.43	1640	74.28	37.75 -	38.25	102	5.75	1019	57.44		
90	4.08	1730	78.35	38.25 -	38.75	83	4.68	1102	62.12		
95	4.30	1825	82.65	38.75 -	39.25	94	5.30	1196	67.42		
65	2.94	1890	85.60	39.25 -	39.75	98	5.52	1294	72.94		
73	3.31	1963	88.90	39.75 -	40.25	63	3.55	1357	76.49		
47	2.13	2010	91.03	40.25 -	40.75	60	3.38	1417	79.88		
48	2.17	2058	93.21	40.75 -	41.25	47	2.65	1464	82.53		
30	1.36	2088	94.57	41.25 -	41.75	55	3.10	1519	85.63		
34	1.54	2122	96.11	41.75 -	42.25	42	2.37	1561	87.99		
18	.82	2140	96.92	42.25 -	42.75	29	1.63	1590	89.63		
17	.77	2157	97.69	42.75 -	43.25	26	1.47	1616	91.09		
12	.54	2169	98.23	43.25 -	43.75	37	2.09	1653	93.18		
7	.32	2176	98.55	43.75 -	44.25	38	2.14	1691	95.32		
7	.32	2183	98.87	44.25 -	44.75	19	1.07	1710	96.39		
9	.41	2192	99.28	44.75 -	45.25	16	.90	1726	97.29		
3	.14	2195	99.41	45.25 -	45.75	9	.51	1735	97.80		
6	.27	2201	99.68	45.75 -	46.25	9	.51	1744	98.31		
2	.09	2203	99.77	46.25 -	46.75	9	.51	1753	98.82		
2	.09	2205	99.86	46.75 -	47.25	5	.28	1758	99.10		
1	.05	2206	99.91	47.25 -	47.75	4	.23	1762	99.32		
1	.05	2207	99.95	47.75 -	48.25	3	.17	1765	99.49		
0	.00	2207	99.95	48.25 -	48.75	1	.06	1766	99.55		
0	.00	2207	99.95	48.75 -	49.25	3	.17	1769	99.72		
1	.05	2208	100.00	49.25 -	49.75	3	.17	1772	99.89		
				49.75 -	50.25	0	.00	1772	99.89		
				50.25 -	50.75	1	.06	1773	99.94		
				50.75 -	51.25	1	.06	1774	100.00		

## (D12) CROTCH LENGTH ANTERIOR (OMPHALION)

The surface distance between the inner thigh landmark and the abdomen at the level of the waist at the navel (omphalion) of a subject standing with one leg on a step is calculated as follows: CROTCH LENGTH (OMPHALION) minus CROTCH LENGTH POSTERIOR (OMPHALION).



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
24.73	9.74	1ST	26.03	10.25
25.27	9.95	2ND	26.71	10.51
25.63	10.09	3RD	27.14	10.68
26.15	10.30	5TH	27.73	10.92
26.98	10.62	10TH	28.66	11.28
27.55	10.85	15TH	29.31	11.54
28.01	11.03	20TH	29.83	11.74
28.40	11.18	25TH	30.29	11.92
28.75	11.32	30TH	30.70	12.09
29.08	11.45	35TH	31.10	12.24
29.39	11.57	40TH	31.47	12.39
29.69	11.69	45TH	31.85	12.54
29.98	11.80	50TH	32.22	12.68
30.28	11.92	55TH	32.60	12.83
30.58	12.04	60TH	32.99	12.99
30.89	12.16	65TH	33.40	13.15
31.22	12.29	70TH	33.84	13.32
31.58	12.43	75TH	34.33	13.51
32.00	12.60	80TH	34.88	13.73
32.49	12.79	85TH	35.54	13.99
33.14	13.05	90TH	36.40	14.33
34.17	13.45	95TH	37.71	14.95
34.90	13.74	97TH	38.60	15.20
35.48	13.97	98TH	39.27	15.46
36.48	14.36	99TH	40.34	15.88

# CROTCH LENGTH ANTERIOR (OMPHALION)

FEMALES			
CM		INCHES	
30.05	MEAN VALUE	11.83	
.05	SE(MEAN)	.02	
2.46	STD DEVIATION	.97	
.04	SE(STD DEV)	.00	
21.40	MINIMUM	8.43	
42.60	MAXIMUM	16.77	
SYMMETRY---VETA I = .29			
KURTOSIS---VETA II = 3.71			
COEF. OF VARIATION = 8.2%			
NUMBER OF SUBJECTS = 2208			

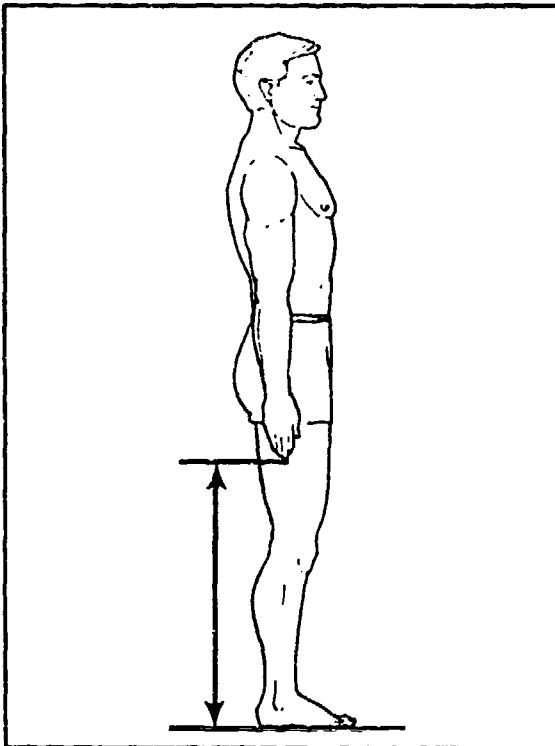
MALES			
CM		INCHES	
32.41	MEAN VALUE	12.76	
.07	SE(MEAN)	.03	
3.04	STD DEVIATION	1.20	
.05	SE(STD DEV)	.02	
24.40	MINIMUM	9.61	
45.00	MAXIMUM	17.72	
SYMMETRY---VETA I = .38			
KURTOSIS---VETA II = 3.25			
COEF. OF VARIATION = 9.4%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	21.25 -	21.75						
0	.00	1	.05	21.75 -	22.25						
2	.09	3	.14	22.25 -	22.75						
3	.14	6	.27	22.75 -	23.25						
3	.14	9	.41	23.25 -	23.75						
7	.32	16	.72	23.75 -	24.25						
7	.32	23	1.04	24.25 -	24.75						
18	.82	41	1.86	24.75 -	25.25	3	.17	3	.17		
34	1.54	75	3.40	25.25 -	25.75	4	.23	7	.39		
38	1.72	113	5.12	25.75 -	26.25	5	.28	12	.68		
67	3.03	180	8.15	26.25 -	26.75	10	.56	22	1.24		
78	3.53	258	11.68	26.75 -	27.25	12	.68	34	1.92		
107	4.85	365	16.53	27.25 -	27.75	27	1.52	61	3.44		
155	7.02	520	23.55	27.75 -	28.25	36	2.03	97	5.47		
163	7.38	683	30.93	28.25 -	28.75	38	2.14	135	7.61		
153	6.93	836	37.86	28.75 -	29.25	57	3.21	192	10.82		
196	8.88	1032	46.74	29.25 -	29.75	65	3.66	257	14.49		
175	7.93	1207	54.66	29.75 -	30.25	78	4.40	335	18.88		
169	7.65	1376	62.32	30.25 -	30.75	95	5.36	430	24.24		
178	8.06	1554	70.38	30.75 -	31.25	96	5.41	526	29.65		
132	5.98	1686	76.36	31.25 -	31.75	118	6.65	644	36.30		
122	5.53	1808	81.88	31.75 -	32.25	129	7.27	773	43.57		
118	5.34	1926	87.23	32.25 -	32.75	116	6.54	889	50.11		
80	3.62	2006	90.85	32.75 -	33.25	138	7.78	1027	57.89		
53	2.40	2059	93.25	33.25 -	33.75	105	5.92	1132	63.81		
52	2.36	2111	95.61	33.75 -	34.25	98	5.52	1230	69.33		
28	1.27	2139	96.88	34.25 -	34.75	94	5.30	1324	74.63		
20	.91	2159	97.78	34.75 -	35.25	91	5.13	1415	79.76		
16	.72	2175	98.51	35.25 -	35.75	64	3.61	1479	83.37		
5	.23	2180	98.73	35.75 -	36.25	42	2.37	1521	85.74		
9	.41	2189	99.14	36.25 -	36.75	52	2.93	1573	88.67		
6	.27	2195	99.41	36.75 -	37.25	43	2.42	1616	91.09		
5	.23	2200	99.64	37.25 -	37.75	42	2.37	1658	93.46		
2	.09	2202	99.73	37.75 -	38.25	32	1.80	1690	95.26		
2	.09	2204	99.82	38.25 -	38.75	24	1.35	1714	96.62		
1	.05	2205	99.86	38.75 -	39.25	13	.73	1727	97.35		
1	.05	2206	99.91	39.25 -	39.75	7	.39	1734	97.75		
0	.00	2206	99.91	39.75 -	40.25	12	.68	1746	98.42		
0	.00	2206	99.91	40.25 -	40.75	10	.56	1756	98.99		
0	.00	2206	99.91	40.75 -	41.25	7	.39	1763	99.38		
0	.00	2206	99.91	41.25 -	41.75	2	.11	1765	99.49		
1	.05	2207	99.95	41.75 -	42.25	3	.17	1768	99.66		
1	.05	2208	100.00	42.25 -	42.75	1	.06	1769	99.72		
				42.75 -	43.25	1	.06	1770	99.77		
				43.25 -	43.75	1	.06	1771	99.83		
				43.75 -	44.25	1	.06	1772	99.89		
				44.25 -	44.75	0	.00	1773	99.94		
				44.75 -	45.25	0	.00	1773	99.94		
						1	.06	1774	100.00		



## (D13) DACTYLION HEIGHT

The vertical distance between a standing surface and the tip of the right middle finger (dactylion) of a subject standing erect with the arms and hands straight at the sides is calculated as follows: WRIST HEIGHT minus HAND LENGTH.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
53.18	20.94	1ST	56.24	22.14
53.90	21.22	2ND	57.43	22.61
54.40	21.42	3RD	58.15	22.89
55.13	21.71	5TH	59.08	23.26
56.33	22.18	10TH	60.46	23.80
57.18	22.51	15TH	61.37	24.16
57.87	22.78	20TH	62.08	24.44
58.47	23.02	25TH	62.70	24.69
59.02	23.24	30TH	63.26	24.91
59.52	23.43	35TH	63.77	25.11
60.01	23.62	40TH	64.27	25.30
60.47	23.81	45TH	64.75	25.49
60.94	23.99	50TH	65.23	25.68
61.40	24.17	55TH	65.71	25.87
61.87	24.36	60TH	66.20	26.06
62.35	24.55	65TH	66.71	26.26
62.86	24.75	70TH	67.25	26.48
63.41	24.96	75TH	67.85	26.71
64.02	25.21	80TH	68.51	26.97
64.73	25.48	85TH	69.27	27.27
65.63	25.84	90TH	70.24	27.65
66.96	26.36	95TH	71.63	28.20
67.84	26.71	97TH	72.50	28.54
68.49	26.97	98TH	73.10	28.78
69.54	27.38	99TH	73.99	29.13

# DACTYLION HEIGHT

## FEMALES

CM		INCHES
60.99	MEAN VALUE	24.01
.08	SE (MEAN)	.03
3.58	STD DEVIATION	1.41
.05	SE (STD DEV)	.02
49.20	MINIMUM	19.37
74.70	MAXIMUM	29.41

SYMMETRY---VETA I = .13  
 KURTOSIS---VETA II = 2.91  
 COEF. OF VARIATION = 5.9%  
 NUMBER OF SUBJECTS = 2208

## MALES

CM		INCHES
65.28	MEAN VALUE	25.70
.09	SE (MEAN)	.04
3.79	STD DEVIATION	1.49
.06	SE (STD DEV)	.03
52.50	MINIMUM	20.67
78.90	MAXIMUM	31.06

SYMMETRY---VETA I = .00  
 KURTOSIS---VETA II = 2.96  
 COEF. OF VARIATION = 5.8%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
1	.05	1	.05
3	.14	4	.18
1	.05	5	.23
5	.23	10	.45
22	1.00	32	1.45
36	1.63	68	3.08
65	2.94	133	6.02
93	4.21	226	10.24
147	6.66	373	16.89
207	9.38	580	26.27
213	9.65	793	35.91
220	9.96	1013	45.88
238	10.78	1251	56.66
223	10.10	1474	66.76
201	9.10	1675	75.86
176	7.97	1851	83.83
124	5.62	1975	89.45
100	4.53	2075	93.98
62	2.81	2137	96.78
25	1.13	2162	97.92
24	1.09	2186	99.00
12	.54	2198	99.55
4	.18	2202	99.73
4	.18	2206	99.91
1	.05	2207	99.95
0	.00	2207	99.95
1	.05	2208	100.00

### CENTIMETERS

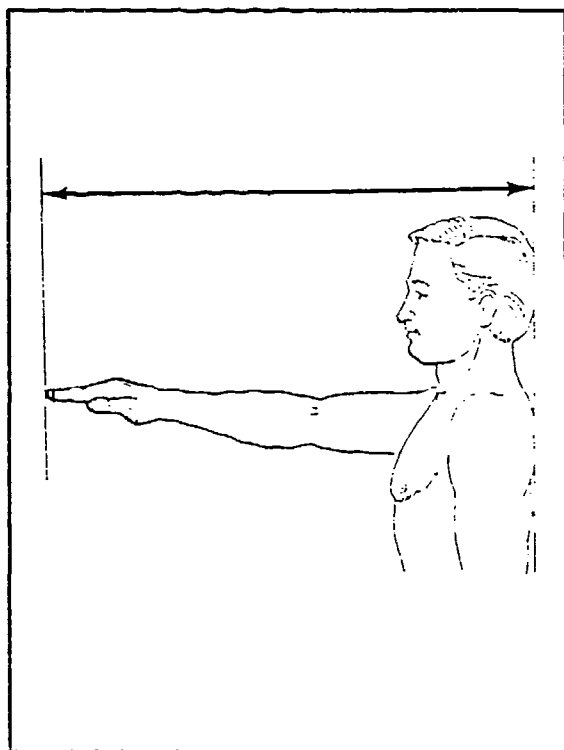
48.55 - 49.55
49.55 - 50.55
50.55 - 51.55
51.55 - 52.55
52.55 - 53.55
53.55 - 54.55
54.55 - 55.55
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61.55 - 62.55
62.55 - 63.55
63.55 - 64.55
64.55 - 65.55
65.55 - 66.55
66.55 - 67.55
67.55 - 68.55
68.55 - 69.55
69.55 - 70.55
70.55 - 71.55
71.55 - 72.55
72.55 - 73.55
73.55 - 74.55
74.55 - 75.55
75.55 - 76.55
76.55 - 77.55
77.55 - 78.55
78.55 - 79.55

### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
1	.06	2	.11
2	.11	4	.23
6	.34	10	.56
12	.68	22	1.24
11	.62	33	1.86
31	1.75	64	3.61
56	3.16	120	6.76
54	3.04	174	9.81
111	6.26	285	16.07
134	7.55	419	23.62
182	10.26	601	33.88
171	9.64	772	43.52
165	9.30	937	52.82
172	9.70	1109	62.51
159	8.96	1268	71.48
160	9.02	1428	80.50
116	6.54	1544	87.03
79	4.45	1623	91.49
64	3.61	1687	95.10
40	2.25	1727	97.35
25	1.41	1752	98.76
11	.62	1763	99.38
5	.28	1768	99.66
3	.17	1771	99.83
2	.11	1773	99.94
0	.00	1773	99.94
1	.06	1774	100.00

## (D14) DACTYLION REACH FROM WALL

The horizontal distance between the plane of the back and the tip of the right middle finger of a subject standing erect with the back against a wall and the arm, hand, and fingers extended forward horizontally is calculated as follows: WRIST-WALL LENGTH plus HAND LENGTH.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
71.80	28.27	1ST	78.72	30.99
72.56	28.57	2ND	79.52	31.31
73.08	28.77	3RD	80.08	31.53
73.81	29.06	5TH	80.88	31.84
75.03	29.54	10TH	82.19	32.36
75.90	29.88	15TH	83.13	32.73
76.61	30.16	20TH	83.89	33.03
77.24	30.41	25TH	84.56	33.29
77.81	30.63	30TH	85.17	33.53
78.35	30.85	35TH	85.74	33.75
78.87	31.05	40TH	86.28	33.97
79.37	31.25	45TH	86.81	34.18
79.88	31.45	50TH	87.34	34.38
80.39	31.65	55TH	87.87	34.59
80.91	31.86	60TH	88.41	34.81
81.46	32.07	65TH	88.97	35.03
82.04	32.30	70TH	89.57	35.26
82.66	32.54	75TH	90.22	35.52
83.37	32.82	80TH	90.95	35.81
84.19	33.15	85TH	91.81	36.15
85.23	33.56	90TH	92.91	36.58
86.77	34.16	95TH	94.59	37.24
87.77	34.55	97TH	95.71	37.68
88.49	34.84	98TH	96.56	38.02
89.62	35.28	99TH	97.95	38.56

## DACTYLION REACH FROM WALL

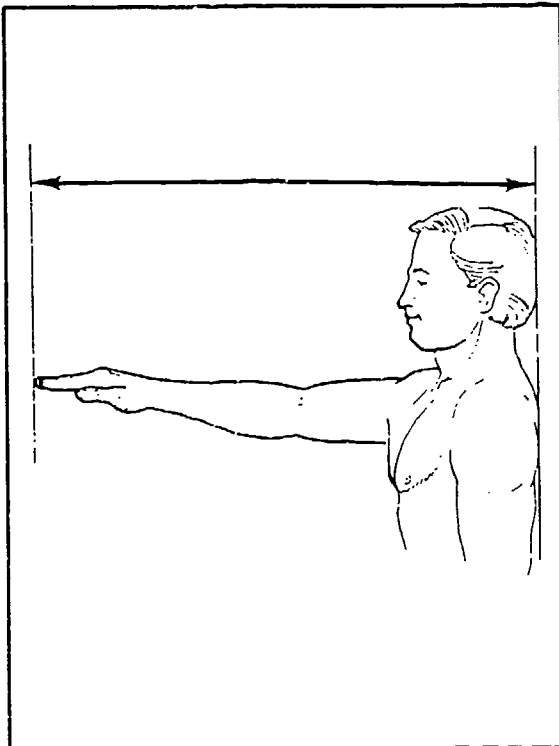
FEMALES		
<u>CM</u>		<u>INCHES</u>
80.03	MEAN VALUE	31.51
.08	SE (MEAN)	.03
3.94	STD DEVIATION	1.55
.06	SE (STD DEV)	.02
66.20	MINIMUM	26.06
97.80	MAXIMUM	38.50
SYMMETRY---VETA I	=	.19
KURTOSIS---VETA II	=	3.06
COEF. OF VARIATION	=	4.9%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>		<u>INCHES</u>
87.47	MEAN VALUE	34.44
.10	SE (MEAN)	.04
4.21	STD DEVIATION	1.66
.07	SE (STD DEV)	.03
72.60	MINIMUM	28.58
106.30	MAXIMUM	41.85
SYMMETRY---VETA I	=	.22
KURTOSIS---VETA II	=	3.27
COEF. OF VARIATION	=	4.8%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE								
FEMALES				MALES				
F	FPct	CumF	CumFPct	CENTIMETERS	F	FPct	CumF	CumFPct
1	.05	1	.05	65.55 - 66.55				
0	.00	1	.05	66.55 - 67.55				
1	.05	2	.09	67.55 - 68.55				
5	.23	7	.32	68.55 - 69.55				
6	.27	13	.59	69.55 - 70.55				
7	.32	20	.91	70.55 - 71.55				
17	.77	37	1.68	71.55 - 72.55				
48	2.17	85	3.85	72.55 - 73.55	1	.06	1	.06
80	3.62	165	7.47	73.55 - 74.55	1	.06	2	.11
120	5.43	285	12.91	74.55 - 75.55	2	.11	4	.23
150	6.79	435	19.70	75.55 - 76.55	2	.11	6	.34
172	7.79	607	27.49	76.55 - 77.55	4	.23	10	.56
196	8.88	803	36.37	77.55 - 78.55	6	.34	16	.90
225	10.19	1028	46.56	78.55 - 79.55	20	1.13	36	2.03
225	10.19	1253	56.75	79.55 - 80.55	28	1.58	64	3.61
198	8.97	1451	65.72	80.55 - 81.55	67	3.78	131	7.38
187	8.47	1638	74.18	81.55 - 82.55	79	4.45	210	11.84
152	6.88	1790	81.07	82.55 - 83.55	112	6.31	322	18.15
127	5.75	1917	86.82	83.55 - 84.55	127	7.16	449	25.31
107	4.85	2024	91.67	84.55 - 85.55	143	8.06	592	33.37
72	3.26	2096	94.93	85.55 - 86.55	177	9.98	769	43.35
41	1.86	2137	96.78	86.55 - 87.55	144	8.12	913	51.47
26	1.18	2163	97.96	87.55 - 88.55	172	9.70	1085	61.16
24	1.09	2187	99.05	88.55 - 89.55	146	8.23	1231	69.39
11	.50	2198	99.55	89.55 - 90.55	138	7.78	1369	77.17
7	.32	2205	99.86	90.55 - 91.55	111	6.26	1480	83.43
1	.05	2206	99.91	91.55 - 92.55	95	5.36	1575	88.78
0	.00	2206	99.91	92.55 - 93.55	62	3.49	1637	92.28
0	.00	2206	99.91	93.55 - 94.55	52	2.93	1689	95.21
0	.00	2206	99.91	94.55 - 95.55	32	1.80	1721	97.01
1	.05	2207	99.95	95.55 - 96.55	19	1.07	1740	98.08
0	.00	2207	99.95	96.55 - 97.55	11	.62	1751	98.70
1	.05	2208	100.00	97.55 - 98.55	11	.62	1762	99.32
				98.55 - 99.55	4	.23	1766	99.55
				99.55 - 100.55	5	.28	1771	99.83
				100.55 - 101.55	1	.06	1772	99.89
				101.55 - 102.55	0	.00	1772	99.89
				102.55 - 103.55	0	.00	1772	99.89
				103.55 - 104.55	0	.00	1772	99.89
				104.55 - 105.55	0	.00	1772	99.89
				105.55 - 106.55	7	.11	1774	100.00

## (D15) DACTYLION REACH FROM WALL, EXTENDED

The horizontal distance between the plane of the back and the tip of the right middle finger of a subject standing erect with the left shoulder against a wall and the right shoulder, arm, hand, and fingers extended forward horizontally as far as possible is calculated as follows: WRIST-WALL LENGTH, EXTENDED plus HAND LENGTH.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
76.91	30.28	1ST	84.28	33.18	
77.87	30.66	2ND	85.34	33.60	
78.50	30.90	3RD	86.05	33.88	
79.36	31.25	5TH	87.03	34.27	
80.73	31.79	10TH	88.59	34.88	
81.68	32.16	15TH	89.65	35.30	
82.45	32.46	20TH	90.50	35.63	
83.12	32.72	25TH	91.22	35.92	
83.72	32.96	30TH	91.87	36.17	
84.28	33.18	35TH	92.47	36.41	
84.82	33.39	40TH	93.04	36.63	
85.35	33.60	45TH	93.59	36.85	
85.87	33.81	50TH	94.13	37.06	
86.40	34.01	55TH	94.67	37.27	
86.93	34.23	60TH	95.22	37.49	
87.49	34.45	65TH	95.79	37.71	
88.08	34.68	70TH	96.39	37.95	
88.73	34.93	75TH	97.05	38.21	
89.45	35.22	80TH	97.79	38.50	
90.30	35.55	85TH	98.67	38.85	
91.37	35.97	90TH	99.81	39.30	
92.98	36.60	95TH	101.61	40.00	
94.02	37.02	97TH	102.86	40.50	
94.80	37.32	98TH	103.84	40.88	
96.01	37.80	99TH	105.50	41.54	

# DACTYLION REACH FROM WALL, EXTENDED

## FEMALES

<u>CM</u>		<u>INCHES</u>
85.98	MEAN VALUE	33.85
.09	SE (MEAN)	.03
4.13	STD DEVIATION	1.63
.06	SE (STD DEV)	.02
71.40	MINIMUM	28.11
105.70	MAXIMUM	41.61

SYMMETRY---VETA I = .16  
 KURTOSIS---VETA II = 3.14  
 COEF. OF VARIATION = 4.8%  
 NUMBER OF SUBJECTS = 2208

## MALES

<u>CM</u>		<u>INCHES</u>
94.22	MEAN VALUE	37.09
.11	SE (MEAN)	.04
4.43	STD DEVIATION	1.75
.07	SE (STD DEV)	.03
79.10	MINIMUM	31.14
113.10	MAXIMUM	44.53

SYMMETRY---VETA I = .17  
 KURTOSIS---VETA II = 3.28  
 COEF. OF VARIATION = 4.7%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

<u>F</u>	<u>FPct</u>	<u>CumF</u>	<u>CumFPct</u>
1	.05	1	.05
0	.00	1	.05
1	.05	2	.09
3	.14	5	.23
6	.27	11	.50
4	.18	15	.68
21	.95	36	1.63
27	1.22	63	2.85
53	2.40	116	5.25
81	3.67	197	8.92
124	5.62	321	14.54
140	6.34	461	20.88
170	7.70	631	28.58
208	9.42	839	38.00
205	9.28	1044	47.28
193	8.74	1237	56.02
188	8.51	1425	64.54
199	9.01	1624	73.55
160	7.25	1784	80.80
143	6.48	1927	87.27
81	3.67	2008	90.94
74	3.35	2082	94.29
49	2.22	2131	96.51
23	1.04	2154	97.55
23	1.04	2177	98.60
17	.77	2194	99.37
8	.36	2202	99.73
2	.09	2204	99.82
0	.00	2204	99.82
3	.14	2207	99.95
0	.00	2207	99.95
0	.00	2207	99.95
0	.00	2207	99.95
0	.00	2207	99.95
1	.05	2208	100.00

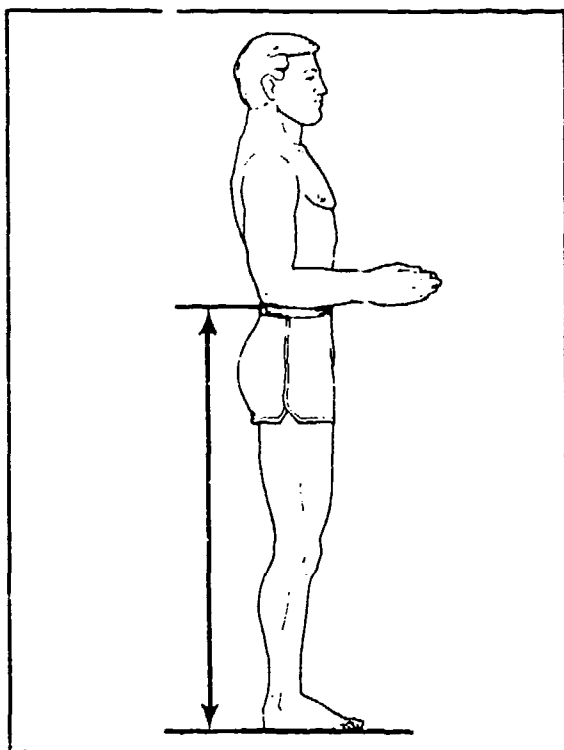
<u>CENTIMETERS</u>
70.55 - 71.55
71.55 - 72.55
72.55 - 73.55
73.55 - 74.55
74.55 - 75.55
75.55 - 76.55
76.55 - 77.55
77.55 - 78.55
78.55 - 79.55
79.55 - 80.55
80.55 - 81.55
81.55 - 82.55
82.55 - 83.55
83.55 - 84.55
84.55 - 85.55
85.55 - 86.55
86.55 - 87.55
87.55 - 88.55
88.55 - 89.55
89.55 - 90.55
90.55 - 91.55
91.55 - 92.55
92.55 - 93.55
93.55 - 94.55
94.55 - 95.55
95.55 - 96.55
96.55 - 97.55
97.55 - 98.55
98.55 - 99.55
99.55 - 100.55
100.55 - 101.55
101.55 - 102.55
102.55 - 103.55
103.55 - 104.55
104.55 - 105.55
105.55 - 106.55
106.55 - 107.55
107.55 - 108.55
108.55 - 109.55
109.55 - 110.55
110.55 - 111.55
111.55 - 112.55
112.55 - 113.55

### MALES

<u>F</u>	<u>FPct</u>	<u>CumF</u>	<u>CumFPct</u>
1	.06	1	.06
1	.06	2	.11
2	.11	4	.23
1	.06	5	.28
4	.23	9	.51
13	.73	22	1.24
13	.73	35	1.97
34	1.92	69	3.89
40	2.25	109	6.14
54	3.04	163	9.19
98	5.52	261	14.71
110	6.20	371	20.91
114	6.43	485	27.34
145	6.17	630	35.51
160	9.02	790	44.53
170	9.58	960	54.11
150	8.46	1110	62.57
145	8.17	1255	70.74
125	7.05	1380	77.79
114	6.43	1494	84.22
80	4.51	1574	88.73
63	3.55	1637	92.28
51	2.87	1688	95.15
33	1.86	1721	97.01
13	.73	1734	97.75
13	.73	1747	98.48
8	.45	1755	98.93
11	.62	1766	99.55
4	.23	1770	99.77
2	.11	1772	99.89
0	.00	1772	99.89
0	.00	1772	99.89
0	.00	1772	99.89
2	.11	1774	100.00

## (D16) ELBOW REST HEIGHT, STANDING

The vertical distance between a standing surface and the lowest point of the right elbow of a subject standing erect with the right elbow flexed 90 degrees is calculated as follows: ELBOW REST HEIGHT plus STATURE minus SITTING HEIGHT.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
89.51	35.24	1ST	96.18	37.87	
90.80	35.75	2ND	97.56	38.41	
91.58	36.06	3RD	98.40	38.74	
92.63	36.47	5TH	99.52	39.18	
94.20	37.09	10TH	101.21	39.85	
95.24	37.50	15TH	102.34	40.29	
96.06	37.82	20TH	103.23	40.64	
96.77	38.10	25TH	104.00	40.95	
97.41	38.35	30TH	104.70	41.22	
98.00	38.58	35TH	105.35	41.48	
98.57	38.81	40TH	105.97	41.72	
99.12	39.02	45TH	106.57	41.96	
99.67	39.24	50TH	107.18	42.20	
100.23	39.46	55TH	107.78	42.43	
100.79	39.68	60TH	108.40	42.68	
101.38	39.92	65TH	109.05	42.93	
102.02	40.16	70TH	109.73	43.20	
102.71	40.44	75TH	110.47	43.49	
103.49	40.74	80TH	111.31	43.82	
104.41	41.11	85TH	112.28	44.20	
105.60	41.57	90TH	113.50	44.68	
107.40	42.28	95TH	115.28	45.39	
108.59	42.75	97TH	116.41	45.83	
109.47	43.10	98TH	117.21	46.15	
110.87	43.65	99TH	118.41	46.62	

# ELBOW REST HEIGHT, STANDING

FEMALES			
<u>CM</u>		<u>INCHES</u>	
99.79	MEAN VALUE	39.29	
.10	SE(MEAN)	.04	
4.48	STD DEVIATION	1.76	
.07	SE(STD DEV)	.03	
85.60	MINIMUM	33.70	
118.50	MAXIMUM	46.65	
SYMMETRY---VETA I		=	.13
KURTOSIS---VETA II		=	3.07
COEF. OF VARIATION		=	4.5%
NUMBER OF SUBJECTS		=	2208

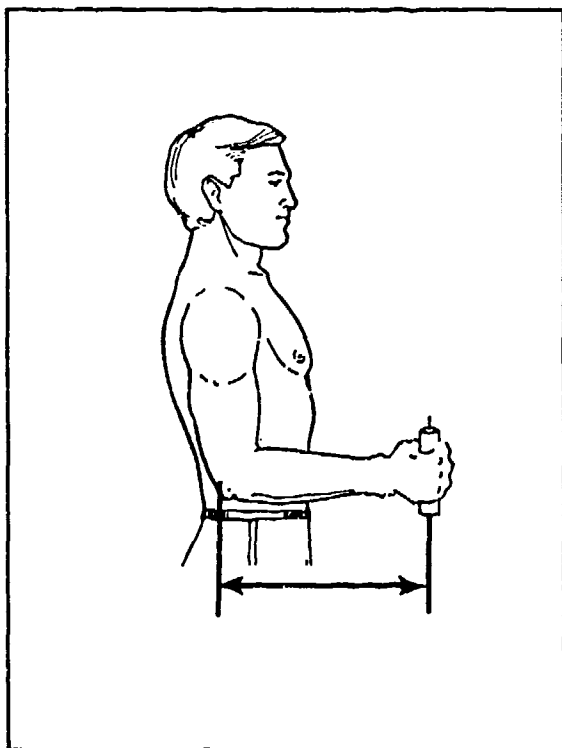
MALES			
<u>CM</u>		<u>INCHES</u>	
107.25	MEAN VALUE	42.22	
.11	SE(MEAN)	.04	
4.81	STD DEVIATION	1.89	
.08	SE(STD DEV)	.03	
88.80	MINIMUM	34.96	
126.10	MAXIMUM	49.65	
SYMMETRY---VETA I		=	.05
KURTOSIS---VETA II		=	3.18
COEF. OF VARIATION		=	4.5%
NUMBER OF SUBJECTS		=	1774

FREQUENCY TABLE									
FEMALES					MALES				
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>	F	FPct	CumF	CumFPct	
3	.14	3	.14	85.55 - 86.55					
1	.05	4	.18	86.55 - 87.55					
8	.36	12	.54	87.55 - 88.55					
10	.45	22	1.00	88.55 - 89.55	1	.06	1	.06	
24	1.09	46	2.08	89.55 - 90.55	0	.00	1	.06	
16	.72	62	2.81	90.55 - 91.55	1	.06	2	.11	
34	1.54	96	4.35	91.55 - 92.55	1	.06	3	.17	
69	3.13	165	7.47	92.55 - 93.55	3	.17	6	.34	
87	3.94	252	11.41	93.55 - 94.55	1	.06	7	.39	
118	5.34	370	16.76	94.55 - 95.55	7	.39	14	.79	
169	7.65	539	24.41	95.55 - 96.55	7	.39	21	1.18	
166	7.52	705	31.93	96.55 - 97.55	11	.62	32	1.80	
184	8.33	889	40.26	97.55 - 98.55	19	1.07	51	2.87	
193	8.74	1082	49.00	98.55 - 99.55	48	2.71	99	5.58	
185	8.38	1267	57.38	99.55 - 100.55	48	2.71	147	8.29	
169	7.65	1436	65.04	100.55 - 101.55	56	3.16	203	11.44	
184	8.33	1620	73.37	101.55 - 102.55	90	5.07	293	16.52	
163	7.38	1783	80.75	102.55 - 103.55	96	5.41	389	21.93	
117	5.30	1900	86.05	103.55 - 104.55	105	5.92	494	27.85	
82	3.71	1982	89.76	104.55 - 105.55	146	8.23	640	36.08	
73	3.31	2055	93.07	105.55 - 106.55	143	8.06	783	44.14	
56	2.54	2111	95.61	106.55 - 107.55	162	9.13	945	53.27	
35	1.59	2146	97.19	107.55 - 108.55	153	8.62	1098	61.09	
20	.91	2166	98.10	108.55 - 109.55	135	7.61	1233	69.50	
16	.72	2182	98.82	109.55 - 110.55	109	6.14	1342	75.65	
14	.63	2196	99.46	110.55 - 111.55	101	5.69	1443	81.34	
4	.18	2200	99.64	111.55 - 112.55	89	5.02	1532	86.36	
6	.27	2206	99.91	112.55 - 113.55	68	3.83	1600	90.19	
0	.00	2206	99.91	113.55 - 114.55	51	2.87	1651	93.07	
1	.05	2207	99.95	114.55 - 115.55	42	2.37	1693	95.43	
0	.00	2207	99.95	115.55 - 116.55	32	1.80	1725	97.24	
0	.00	2207	99.95	116.55 - 117.55	20	1.13	1745	98.37	
1	.05	2208	100.00	117.55 - 118.55	14	.79	1759	99.15	
				118.55 - 119.55	7	.39	1766	99.55	
				119.55 - 120.55	2	.11	1768	99.66	
				120.55 - 121.55	1	.06	1769	99.72	
				121.55 - 122.55	2	.11	1771	99.83	
				122.55 - 123.55	0	.00	1771	99.83	
				123.55 - 124.55	1	.06	1772	99.89	
				124.55 - 125.55	1	.06	1773	99.94	
				125.55 - 126.55	1	.06	1774	100.00	



## (D17) ELBOW-CENTER OF GRIP LENGTH

The horizontal distance between the posterior point of the right elbow flexed 90 degrees and the center of a 1-1/4" diameter dowel gripped vertically in the right hand is calculated as follows: FOREARM-HAND LENGTH minus HAND LENGTH plus WRIST-CENTER OF GRIP LENGTH.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
28.93	11.39	1ST	32.26	12.70	
29.35	11.56	2ND	32.64	12.85	
29.63	11.67	3RD	32.89	12.95	
30.02	11.82	5TH	33.23	13.08	
30.63	12.06	10TH	33.78	13.30	
31.04	12.22	15TH	34.16	13.45	
31.37	12.35	20TH	34.47	13.57	
31.66	12.47	25TH	34.75	13.68	
31.92	12.57	30TH	35.00	13.78	
32.17	12.66	35TH	35.24	13.87	
32.40	12.75	40TH	35.47	13.97	
32.62	12.84	45TH	35.70	14.05	
32.84	12.93	50TH	35.92	14.14	
33.06	13.02	55TH	36.15	14.23	
33.29	13.10	60TH	36.39	14.33	
33.52	13.20	65TH	36.63	14.42	
33.77	13.29	70TH	36.89	14.52	
34.04	13.40	75TH	37.18	14.64	
34.34	13.52	80TH	37.50	14.76	
34.69	13.66	85TH	37.87	14.91	
35.15	13.84	90TH	38.35	15.10	
35.84	14.11	95TH	39.06	15.38	
36.29	14.29	97TH	39.51	15.55	
36.64	14.42	98TH	39.83	15.68	
37.20	14.64	99TH	40.33	15.88	

# ELBOW-CENTER OF GRIP LENGTH

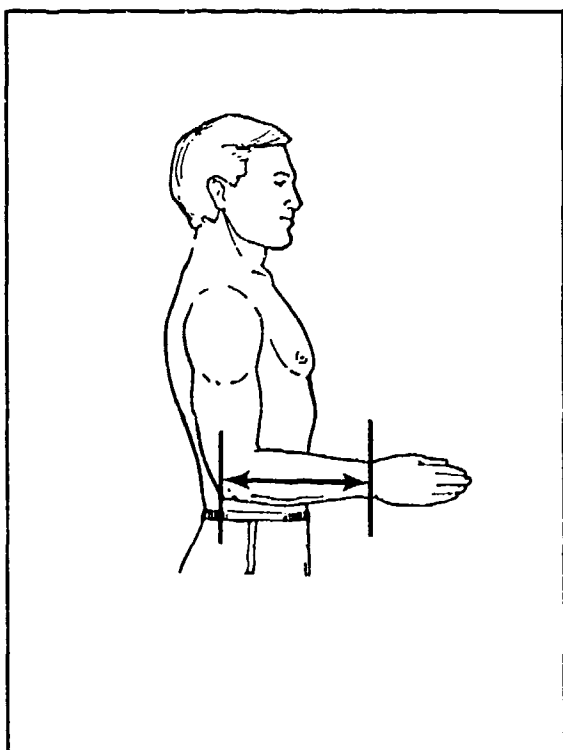
FEMALES			
CM		INCHES	
32.88	MEAN VALUE	12.94	
.04	SE (MEAN)	.00	
1.77	STD DEVIATION	.70	
.03	SE (STD DEV)	.00	
23.70	MINIMUM	9.33	
41.30	MAXIMUM	16.26	
SYMMETRY---VETA I = .10			
KURTOSIS---VETA II = 3.41			
COEF. OF VARIATION = 5.4%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
36.00	MEAN VALUE	14.17	
.04	SE (MEAN)	.02	
1.79	STD DEVIATION	.70	
.03	SE (STD DEV)	.00	
29.30	MINIMUM	11.54	
43.60	MAXIMUM	17.17	
SYMMETRY---VETA I = .21			
KURTOSIS---VETA II = 3.33			
COEF. OF VARIATION = 5.0%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	23.25 -	23.75						
0	.00	1	.05	23.75 -	24.25						
0	.00	1	.05	24.25 -	24.75						
0	.00	1	.05	24.75 -	25.25						
0	.00	1	.05	25.25 -	25.75						
0	.00	1	.05	25.75 -	26.25						
0	.00	1	.05	26.25 -	26.75						
0	.00	1	.05	26.75 -	27.25						
1	.05	2	.09	27.25 -	27.75						
6	.27	8	.36	27.75 -	28.25						
8	.36	16	.72	28.25 -	28.75						
21	.95	37	1.68	28.75 -	29.25						
34	1.54	71	3.22	29.25 -	29.75	2	.11	2	.11		
64	2.90	135	6.11	29.75 -	30.25	1	.06	3	.17		
114	5.16	249	11.28	30.25 -	30.75	2	.11	5	.28		
165	7.47	414	18.75	30.75 -	31.25	0	.00	5	.28		
186	8.42	600	27.17	31.25 -	31.75	4	.23	9	.51		
202	9.15	802	36.32	31.75 -	32.25	8	.45	17	.96		
241	10.91	1043	47.24	32.25 -	32.75	26	1.47	43	2.42		
256	11.59	1299	58.83	32.75 -	33.25	47	2.65	90	5.07		
243	11.01	1542	69.84	33.25 -	33.75	85	4.79	175	9.86		
194	8.79	1736	78.62	33.75 -	34.25	102	5.75	277	15.61		
169	7.65	1905	86.28	34.25 -	34.75	151	8.51	428	24.13		
111	5.03	2016	91.30	34.75 -	35.25	205	11.56	633	35.68		
76	3.44	2092	94.75	35.25 -	35.75	188	10.60	821	46.28		
46	2.08	2138	96.83	35.75 -	36.25	193	10.88	1014	57.16		
30	1.36	2168	98.19	36.25 -	36.75	188	10.60	1202	67.76		
21	.95	2189	99.14	36.75 -	37.25	148	8.34	1350	76.10		
11	.50	2200	99.64	37.25 -	37.75	126	7.10	1476	83.20		
1	.05	2201	99.68	37.75 -	38.25	115	6.48	1591	89.68		
6	.27	2207	99.95	38.25 -	38.75	74	4.17	1665	93.86		
0	.00	2207	99.95	38.75 -	39.25	36	2.03	1701	95.89		
0	.00	2207	99.95	39.25 -	39.75	33	1.86	1734	97.75		
0	.00	2207	99.95	39.75 -	40.25	21	1.18	1755	98.93		
0	.00	2207	99.95	40.25 -	40.75	7	.39	1762	99.32		
0	.00	2207	99.95	40.75 -	41.25	3	.17	1765	99.49		
1	.05	2208	100.00	41.25 -	41.75	6	.34	1771	99.83		
				41.75 -	42.25	1	.06	1772	99.89		
				42.25 -	42.75	0	.00	1772	99.89		
				42.75 -	43.25	1	.06	1773	99.94		
				43.25 -	43.75	1	.06	1774	100.00		

## (D18) ELBOW-WRIST LENGTH

The horizontal distance between the posterior point of the right elbow flexed 90 degrees and the stylium landmark on the right wrist of a subject standing with the forearm and hand held horizontally is calculated as follows: FOREARM-HAND LENGTH minus HAND LENGTH.



THE PERCENTILES				
FEMALES			MALES	
CM	INCHES		CM	INCHES
22.94	9.03	1ST	25.79	10.15
23.26	9.16	2ND	26.09	10.27
23.47	9.24	3RD	26.30	10.35
23.78	9.36	5TH	26.60	10.47
24.28	9.56	10TH	27.09	10.66
24.64	9.70	15TH	27.44	10.80
24.93	9.81	20TH	27.72	10.91
25.18	9.91	25TH	27.97	11.01
25.41	10.00	30TH	28.19	11.10
25.62	10.09	35TH	28.40	11.18
25.83	10.17	40TH	28.60	11.26
26.03	10.25	45TH	28.80	11.34
26.22	10.32	50TH	28.99	11.41
26.42	10.40	55TH	29.18	11.49
26.62	10.48	60TH	29.38	11.57
26.83	10.56	65TH	29.58	11.65
27.05	10.65	70TH	29.80	11.73
27.29	10.74	75TH	30.03	11.82
27.56	10.85	80TH	30.30	11.93
27.86	10.97	85TH	30.61	12.05
28.26	11.12	90TH	31.01	12.21
28.83	11.35	95TH	31.61	12.45
29.21	11.50	97TH	32.02	12.61
29.49	11.61	98TH	32.33	12.73
29.93	11.78	99TH	32.84	12.93

# ELBOW-WRIST LENGTH

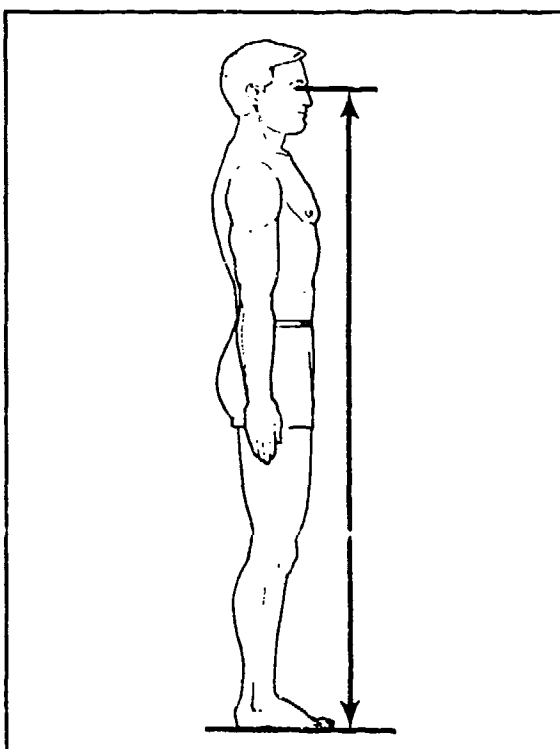
FEMALES			
<u>CM</u>		<u>INCHES</u>	
26.25	MEAN VALUE	10.33	
.03	SE(MEAN)	.00	
1.54	STD DEVIATION	.61	
.02	SE(STD DEV)	.00	
17.00	MINIMUM	6.69	
33.40	MAXIMUM	13.15	
SYMMETRY---VETA I = .07			
KURTOSIS---VETA II = 3.53			
COEF. OF VARIATION = 5.9%			
NUMBER OF SUBJECTS = 2208			

MALES			
<u>CM</u>		<u>INCHES</u>	
29.03	MEAN VALUE	11.43	
.04	SE(MEAN)	.00	
1.54	STD DEVIATION	.61	
.03	SE(STD DEV)	.00	
22.60	MINIMUM	8.90	
35.00	MAXIMUM	13.78	
SYMMETRY---VETA I = .17			
KURTOSIS---VETA II = 3.32			
COEF. OF VARIATION = 5.3%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct	CumF	CumFPct		
1	.05	1	.05	16.75 -	17.25						
0	.00	1	.05	17.25 -	17.75						
0	.00	1	.05	17.75 -	18.25						
0	.00	1	.05	18.25 -	18.75						
0	.00	1	.05	18.75 -	19.25						
0	.00	1	.05	19.25 -	19.75						
0	.00	1	.05	19.75 -	20.25						
0	.00	1	.05	20.25 -	20.75						
0	.00	1	.05	20.75 -	21.25						
2	.09	3	.14	21.25 -	21.75						
4	.18	7	.32	21.75 -	22.25						
10	.45	17	.77	22.25 -	22.75	1	.06	1	.06		
21	.95	38	1.72	22.75 -	23.25	0	.00	1	.06		
52	2.36	90	4.08	23.25 -	23.75	1	.06	2	.11		
126	5.71	216	9.78	23.75 -	24.25	2	.11	4	.23		
160	7.25	376	17.03	24.25 -	24.75	1	.06	5	.28		
226	10.24	602	27.26	24.75 -	25.25	1	.06	6	.34		
247	11.19	849	38.45	25.25 -	25.75	10	.56	16	.90		
253	11.46	1102	49.91	25.75 -	26.25	36	2.03	52	2.93		
285	12.91	1387	62.82	26.25 -	26.75	65	3.66	117	6.60		
242	10.96	1629	73.78	26.75 -	27.25	104	5.86	221	12.46		
212	9.60	1841	83.38	27.25 -	27.75	139	7.84	360	20.29		
159	7.20	2000	90.58	27.75 -	28.25	192	10.82	552	31.12		
94	4.26	2094	94.84	28.25 -	28.75	236	13.30	788	44.42		
52	2.36	2146	97.19	28.75 -	29.25	218	12.29	1006	56.71		
36	1.63	2182	98.82	29.25 -	29.75	203	11.44	1209	68.15		
10	.45	2192	99.28	29.75 -	30.25	202	11.39	1411	79.54		
8	.36	2200	99.64	30.25 -	30.75	133	7.50	1544	87.03		
5	.23	2205	99.86	30.75 -	31.25	94	5.30	1638	92.33		
1	.05	2206	99.91	31.25 -	31.75	60	3.38	1698	95.72		
1	.05	2207	99.95	31.75 -	32.25	37	2.09	1735	97.80		
0	.00	2207	99.95	32.25 -	32.75	16	.90	1751	98.70		
0	.00	2207	99.95	32.75 -	33.25	12	.68	1763	99.38		
1	.05	2208	100.00	33.25 -	33.75	5	.28	1768	99.66		
				33.75 -	34.25	4	.23	1772	99.89		
				34.25 -	34.75	0	.00	1772	99.89		
				34.75 -	35.25	2	.11	1774	100.00		

## (D19) EYE HEIGHT

The vertical distance between a standing surface and the outer corner of the right eye of a subject standing erect with the head in the Frankfort plane is calculated as follows: EYE HEIGHT, SITTING plus STATURE minus SITTING HEIGHT.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
137.39	54.09	1ST	148.40	58.43	
139.07	54.75	2ND	150.22	59.14	
140.11	55.16	3RD	151.33	59.58	
141.52	55.72	5TH	152.82	60.17	
143.67	56.56	10TH	155.08	61.05	
145.13	57.14	15TH	156.60	61.65	
146.29	57.59	20TH	157.82	62.13	
147.30	57.99	25TH	158.88	62.55	
148.21	58.35	30TH	159.84	62.93	
149.06	58.68	35TH	160.73	63.28	
149.87	59.00	40TH	161.59	63.62	
150.66	59.32	45TH	162.42	63.95	
151.45	59.63	50TH	163.26	64.28	
152.24	59.94	55TH	164.10	64.61	
153.05	60.26	60TH	164.96	64.94	
153.90	60.59	65TH	165.85	65.30	
154.79	60.94	70TH	166.79	65.67	
155.77	61.33	75TH	167.82	66.07	
156.86	61.76	80TH	168.97	66.52	
158.14	62.26	85TH	170.29	67.04	
159.75	62.90	90TH	171.94	67.69	
162.13	63.83	95TH	174.29	68.62	
163.65	64.43	97TH	175.73	69.18	
164.75	64.86	98TH	176.72	69.57	
166.43	65.52	99TH	178.15	70.14	

# EYE HEIGHT

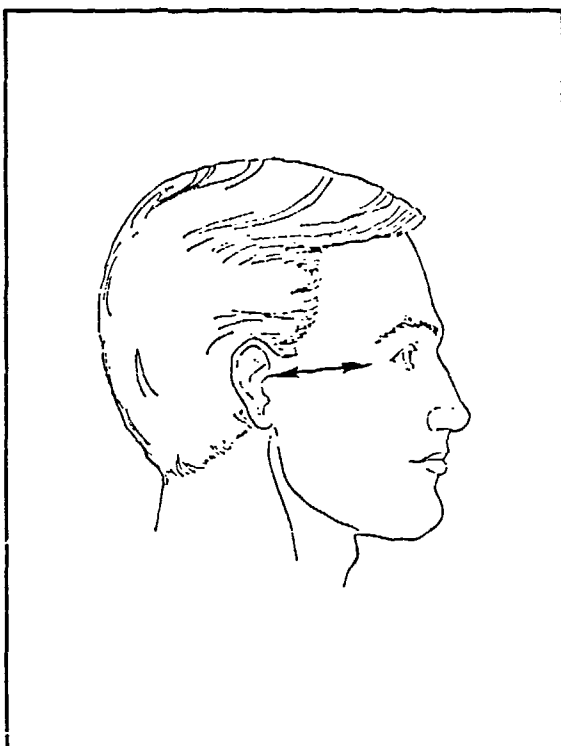
FEMALES			
CM		INCHES	
151.61	MEAN VALUE	59.69	
.13	SE (MEAN)	.05	
6.25	STD DEVIATION	2.46	
.09	SE (STD DEV)	.04	
132.50	MINIMUM	52.17	
175.30	MAXIMUM	69.02	
SYMMETRY---VETA I = .12			
KURTOSIS---VETA II = 3.02			
COEF. OF VARIATION = 4.1%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
163.39	MEAN VALUE	64.32	
.16	SE (MEAN)	.06	
6.57	STD DEVIATION	2.59	
.11	SE (STD DEV)	.04	
138.10	MINIMUM	54.37	
191.20	MAXIMUM	75.28	
SYMMETRY---VETA I = .09			
KURTOSIS---VETA II = 3.17			
COEF. OF VARIATION = 4.0%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
3	.14	3	.14	131.75 -	133.25	1	.06	1	.06		
2	.09	5	.23	133.25 -	134.75	0	.00	1	.06		
9	.41	14	.63	134.75 -	136.25	1	.06	2	.11		
10	.45	24	1.09	136.25 -	137.75	0	.00	2	.11		
23	1.04	47	2.13	137.75 -	139.25	2	.11	4	.23		
39	1.77	86	3.89	139.25 -	140.75	7	.39	11	.62		
47	2.13	133	6.02	140.75 -	142.25	5	.28	16	.90		
82	3.71	215	9.74	142.25 -	143.75	12	.68	28	1.58		
111	5.03	326	14.76	143.75 -	145.25	26	1.47	54	3.04		
163	7.38	489	22.15	145.25 -	146.75	29	1.63	83	4.68		
186	8.42	675	30.57	146.75 -	148.25	56	3.16	139	7.84		
212	9.60	887	40.17	148.25 -	149.75	78	4.40	217	12.23		
188	8.51	1075	48.69	149.75 -	151.25	81	4.57	298	16.80		
194	8.79	1269	57.47	151.25 -	152.75	130	7.33	428	24.13		
203	9.19	1472	66.67	152.75 -	154.25	139	7.84	567	31.96		
175	7.93	1647	74.59	154.25 -	155.75	164	9.24	731	41.21		
158	7.16	1805	81.75	155.75 -	157.25	152	8.57	883	49.77		
126	5.71	1931	87.45	157.25 -	158.75	170	9.58	1053	59.36		
62	3.71	2013	91.17	158.75 -	160.25	149	8.40	1202	67.76		
69	3.13	2082	94.29	160.25 -	161.75	125	7.05	1327	74.80		
50	2.26	2132	96.56	161.75 -	163.25	107	6.03	1434	80.83		
30	1.36	2162	97.92	163.25 -	164.75	93	5.24	1527	86.08		
23	1.04	2185	98.96	164.75 -	166.25	86	4.85	1613	90.92		
13	.59	2198	99.55	166.25 -	167.75	57	3.21	1670	94.14		
3	.14	2201	99.68	167.75 -	169.25	43	2.42	1713	96.56		
0	.00	2201	99.68	169.25 -	170.75	27	1.52	1740	98.08		
5	.23	2206	99.91	170.75 -	172.25	17	.96	1757	99.04		
1	.05	2207	99.95	172.25 -	173.75	4	.23	1761	99.27		
0	.00	2207	99.95	173.75 -	175.25	4	.23	1765	99.49		
1	.05	2208	100.00	175.25 -	176.75	6	.34	1771	99.83		
				176.75 -	178.25	1	.06	1772	99.89		
				178.25 -	179.75	0	.00	1772	99.89		
				179.75 -	181.25	0	.00	1772	99.89		
				181.25 -	182.75	0	.00	1772	99.89		
				182.75 -	184.25	1	.06	1773	99.94		
				184.25 -	185.75	1	.06	1774	100.00		
				185.75 -	187.25						
				187.25 -	188.75						
				188.75 -	190.25						
				190.25 -	191.75						

## (D20) EYE-TRAGION LINK

The distance between the ectoorbitale landmark near the outer corner of the eye and the tragion landmark on the cartilaginous flap of flesh in front of the earhole is calculated using the distance formula for the points: ECTOORBITALE and TRAGION.



### THE PERCENTILES

#### FEMALES

CM INCHES

4.90 1.93

5.01 1.97

5.08 2.00

5.17 2.03

5.30 2.09

5.39 2.12

5.45 2.15

5.51 2.17

5.56 2.19

5.61 2.21

5.66 2.23

5.70 2.24

5.74 2.26

5.79 2.28

5.83 2.30

5.88 2.31

5.92 2.33

5.97 2.35

6.03 2.38

6.10 2.40

6.19 2.44

6.31 2.49

6.40 2.52

6.46 2.54

6.55 2.58

#### MALES

CM INCHES

5.37 2.11

5.47 2.15

5.54 2.18

5.63 2.22

5.77 2.27

5.86 2.31

5.94 2.34

6.00 2.36

6.06 2.39

6.11 2.41

6.16 2.43

6.21 2.45

6.26 2.46

6.30 2.48

6.35 2.50

6.40 2.52

6.45 2.54

6.50 2.56

6.56 2.58

6.63 2.61

6.72 2.65

6.85 2.70

6.94 2.73

7.00 2.76

7.11 2.80

# EYE-TRAGION LINK

FEMALES			
<u>CM</u>		<u>INCHES</u>	
5.74	MEAN VALUE	2.26	
.00	SE (MEAN)	.00	
.35	STD DEVIATION	.14	
.00	SE (STD DEV)	.00	
4.30	MINIMUM	1.69	
7.00	MAXIMUM	2.76	
SYMMETRY---VETA I = -.07			
KURTOSIS---VETA II = 3.23			
COEF. OF VARIATION = 6.1%			
NUMBER OF SUBJECTS = 2208			

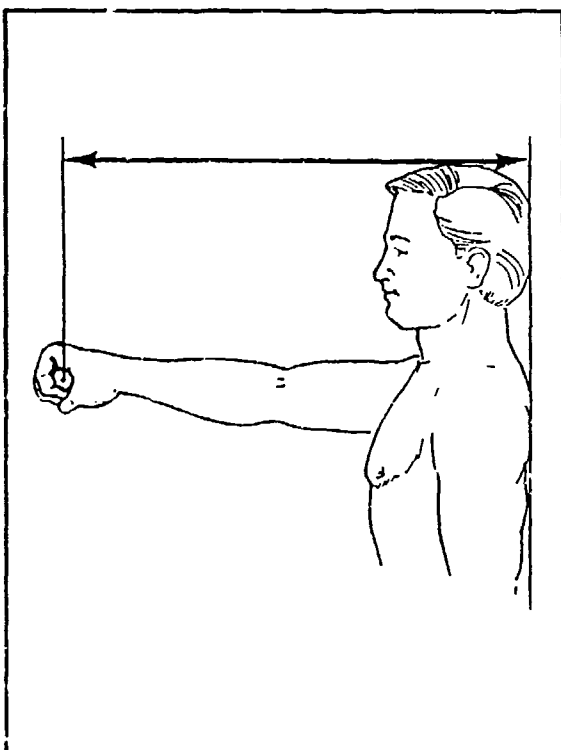
MALES			
<u>CM</u>		<u>INCHES</u>	
6.25	MEAN VALUE	2.46	
.00	SE (MEAN)	.00	
.37	STD DEVIATION	.14	
.00	SE (STD DEV)	.00	
5.00	MINIMUM	1.97	
7.40	MAXIMUM	2.91	
SYMMETRY---VETA I = -.06			
KURTOSIS---VETA II = 2.92			
COEF. OF VARIATION = 5.9%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct	CumF	CumFPct		
1	.05	1	.05	4.25 -	4.35						
2	.09	3	.14	4.35 -	4.45						
0	.00	3	.14	4.45 -	4.55						
0	.00	3	.14	4.55 -	4.65						
3	.14	6	.27	4.65 -	4.75						
11	.50	17	.77	4.75 -	4.85						
12	.54	29	1.31	4.85 -	4.95						
21	.95	50	2.26	4.95 -	5.05						
53	2.40	103	4.66	5.05 -	5.15	1	.06	1	.06		
65	2.94	168	7.61	5.15 -	5.25	0	.00	1	.06		
108	4.89	276	12.50	5.25 -	5.35	3	.17	4	.23		
171	7.74	447	20.24	5.35 -	5.45	9	.51	13	.73		
175	7.93	622	28.17	5.45 -	5.55	18	1.01	31	1.75		
250	11.32	872	39.49	5.55 -	5.65	30	1.69	61	3.44		
233	10.55	1105	50.05	5.65 -	5.75	32	1.80	93	5.24		
260	11.78	1365	61.82	5.75 -	5.85	63	3.55	156	8.79		
253	11.46	1618	73.28	5.85 -	5.95	85	4.79	241	13.59		
191	8.65	1809	81.93	5.95 -	6.05	132	7.44	373	21.03		
138	6.25	1947	88.18	6.05 -	6.15	130	7.33	503	28.35		
106	4.80	2053	92.98	6.15 -	6.25	186	10.48	689	38.84		
75	3.40	2128	96.38	6.25 -	6.35	201	11.33	890	50.17		
32	1.45	2160	97.83	6.35 -	6.45	175	9.86	1065	60.03		
26	1.18	2186	99.00	6.45 -	6.55	173	9.75	1238	69.79		
14	.63	2200	99.64	6.55 -	6.65	154	8.68	1392	78.47		
5	.23	2205	99.86	6.65 -	6.75	141	7.95	1533	86.41		
0	.00	2205	99.86	6.75 -	6.85	95	5.36	1628	91.77		
2	.09	2207	99.95	6.85 -	6.95	63	3.55	1691	95.32		
1	.05	2208	100.00	6.95 -	7.05	35	1.97	1726	97.29		
				7.05 -	7.15	23	1.30	1749	98.59		
				7.15 -	7.25	13	.73	1762	99.32		
				7.25 -	7.35	8	.45	1770	99.77		
				7.35 -	7.45	2	.11	1772	99.89		
						2	.11	1774	100.00		



## (D21) FUNCTIONAL GRIP REACH

The horizontal distance between the vertical plane of the back and the center of a 1-1/4" diameter dowel gripped in the right hand of a subject standing erect with the back against a wall and the arm and hand extended forward horizontally is calculated as follows: WRIST-WALL LENGTH plus WRIST-CENTER OF GRIP LENGTH.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
61.51	24.22	1ST	67.26	26.48
62.12	24.46	2ND	68.04	26.79
62.55	24.63	3RD	68.55	26.99
63.19	24.88	5TH	69.28	27.28
64.26	25.30	10TH	70.45	27.74
65.03	25.60	15TH	71.27	28.06
65.66	25.85	20TH	71.93	28.32
66.22	26.07	25TH	72.52	28.55
66.72	26.27	30TH	73.05	28.76
67.19	26.45	35TH	73.54	28.95
67.64	26.63	40TH	74.02	29.14
68.08	26.80	45TH	74.49	29.33
68.51	26.97	50TH	74.95	29.51
68.95	27.15	55TH	75.42	29.69
69.40	27.32	60TH	75.90	29.88
69.86	27.50	65TH	76.40	30.08
70.34	27.69	70TH	76.92	30.29
70.87	27.90	75TH	77.50	30.51
71.46	28.14	80TH	78.15	30.77
72.15	28.41	85TH	78.91	31.07
73.03	28.75	90TH	79.87	31.45
74.36	29.27	95TH	81.31	32.01
75.24	29.62	97TH	82.25	32.38
75.90	29.88	98TH	82.94	32.65
76.97	30.30	99TH	84.03	33.08

# FUNCTIONAL GRIP REACH

## FEMALES

CM		INCHES
67.61	MEAN VALUE	27.01
.07	SE(MEAN)	.03
3.39	STD DEVIATION	1.33
.05	SE(STD DEV)	.02
57.50	MINIMUM	22.64
83.20	MAXIMUM	32.76

SYMMETRY---VETA I	=	.20
KURTOSIS---VETA II	=	3.07
COEF. OF VARIATION	=	4.9%
NUMBER OF SUBJECTS	=	2208

## MALES

CM		INCHES
75.07	MEAN VALUE	29.55
.09	SE(MEAN)	.03
3.68	STD DEVIATION	1.45
.06	SE(STD DEV)	.02
62.60	MINIMUM	24.65
92.10	MAXIMUM	36.26

SYMMETRY---VETA I	=	.21
KURTOSIS---VETA II	=	3.25
COEF. OF VARIATION	=	4.9%
NUMBER OF SUBJECTS	=	1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
1	.05	1	.05
2	.09	3	.14
3	.14	6	.27
4	.18	10	.45
10	.45	20	.91
37	1.68	57	2.58
76	3.44	133	6.02
130	5.89	263	11.91
150	6.79	413	18.70
222	10.05	635	28.76
212	9.60	847	38.36
259	11.73	1106	50.09
257	11.64	1363	61.73
228	10.33	1591	72.06
199	9.01	1790	81.07
140	6.34	1930	87.41
110	4.98	2040	92.39
78	3.53	2118	95.92
36	1.63	2154	97.55
25	1.13	2179	98.69
16	.72	2195	99.41
6	.27	2201	99.68
5	.23	2206	99.91
0	.00	2206	99.91
0	.00	2206	99.91
0	.00	2206	99.91
2	.09	2208	100.00

### CENTIMETERS

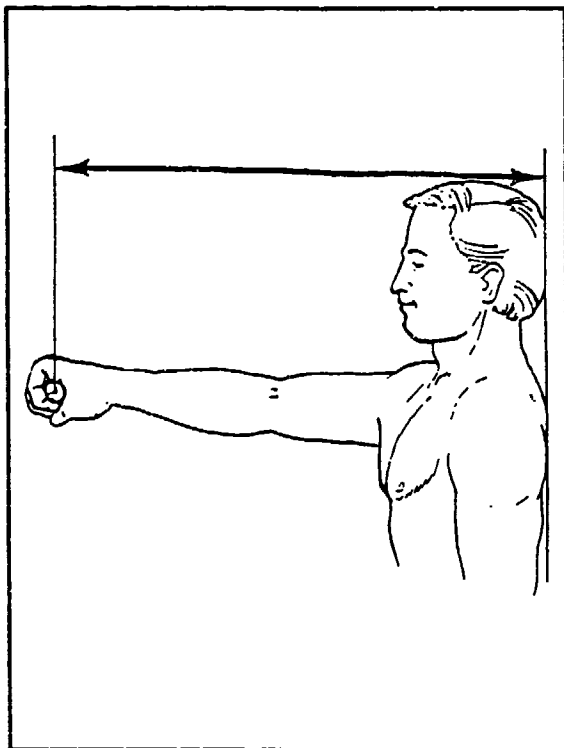
56.55 - 57.55
57.55 - 58.55
58.55 - 59.55
59.55 - 60.55
60.55 - 61.55
61.55 - 62.55
62.55 - 63.55
63.55 - 64.55
64.55 - 65.55
65.55 - 66.55
66.55 - 67.55
67.55 - 68.55
68.55 - 69.55
69.55 - 70.55
70.55 - 71.55
71.55 - 72.55
72.55 - 73.55
73.55 - 74.55
74.55 - 75.55
75.55 - 76.55
76.55 - 77.55
77.55 - 78.55
78.55 - 79.55
79.55 - 80.55
80.55 - 81.55
81.55 - 82.55
82.55 - 83.55
83.55 - 84.55
84.55 - 85.55
85.55 - 86.55
86.55 - 87.55
87.55 - 88.55
88.55 - 89.55
89.55 - 90.55
90.55 - 91.55
91.55 - 92.55

### MALES

F	FPct	CumF	CumFPct
2	.11	2	.11
1	.06	3	.17
3	.17	6	.34
5	.28	11	.62
11	.62	22	1.24
27	1.52	49	2.76
59	3.33	108	6.09
81	4.57	189	10.65
123	6.93	312	17.59
136	7.67	448	25.25
172	9.70	620	34.95
210	11.84	830	46.79
170	9.58	1000	56.37
185	10.43	1185	66.80
147	8.29	1332	75.08
136	7.67	1468	82.75
104	5.86	1572	88.61
79	4.45	1651	93.07
43	2.42	1694	95.49
38	2.14	1732	97.63
18	1.01	1750	98.65
13	.73	1763	99.38
5	.28	1768	99.66
3	.17	1771	99.83
1	.06	1772	99.89
0	.00	1772	99.89
0	.00	1772	99.89
0	.00	1772	99.89
1	.06	1773	99.94
1	.06	1774	100.00

## (D22) FUNCTIONAL GRIP REACH, EXTENDED

The horizontal distance between the vertical plane of the back and the center of a 1-1/4" diameter dowel gripped in the right hand of a subject standing erect with the left shoulder against a wall and the right shoulder, arm, and hand extended forward horizontally as far as possible is calculated as follows: WRIST-WALL LENGTH, EXTENDED plus WRIST-CENTER OF GRIP LENGTH.



### THE PERCENTILES

#### FEMALES

CM INCHES

66.55 26.20

67.40 26.54

67.96 26.76

68.73 27.06

69.96 27.54

70.80 27.87

71.48 28.14

72.07 28.37

72.60 28.58

73.09 28.78

73.56 28.96

74.02 29.14

74.48 29.32

74.94 29.50

75.40 29.69

75.89 29.88

76.40 30.08

76.96 30.30

77.59 30.55

78.33 30.84

79.28 31.21

80.70 31.77

81.65 32.15

82.36 32.42

83.50 32.87

#### MALES

CM INCHES

72.88 28.69

73.88 29.09

74.53 29.34

75.43 29.70

76.83 30.25

77.79 30.63

78.54 30.92

79.19 31.18

79.77 31.41

80.30 31.62

80.81 31.82

81.30 32.01

81.78 32.20

82.27 32.39

82.76 32.58

83.27 32.78

83.80 32.99

84.39 33.22

85.05 33.49

85.83 33.79

86.84 34.19

88.41 34.81

89.50 35.24

90.33 35.56

91.73 36.11

## FUNCTIONAL GRIP REACH, EXTENDED

## FEMALES

<u>CM</u>		<u>INCHES</u>
74.56	MEAN VALUE	29.35
.08	SE (MEAN)	.03
3.61	STD DEVIATION	1.42
.05	SE (STD DEV)	.02
62.60	MINIMUM	24.65
92.40	MAXIMUM	36.38

SYMMETRY---VETA I	=	.17
KURTOSIS---VETA II	=	3.15
COEF. OF VARIATION	=	4.8%
NUMBER OF SUBJECTS	=	2208

**MALES**

<u>CM</u>		<u>INCHES</u>
81.82	MEAN VALUE	32.21
.09	SE (MEAN)	.04
3.91	STD DEVIATION	1.54
.07	SE (STD DEV)	.03
68.70	MINIMUM	27.05
98.60	MAXIMUM	38.82

SYMMETRY---VETA I	=	.15
KURTOSIS---VETA II	=	3.27
COEF. OF VARIATION	=	4.8%
NUMBER OF SUBJECTS	=	1774

### FREQUENCY TABLE

## FEMALES

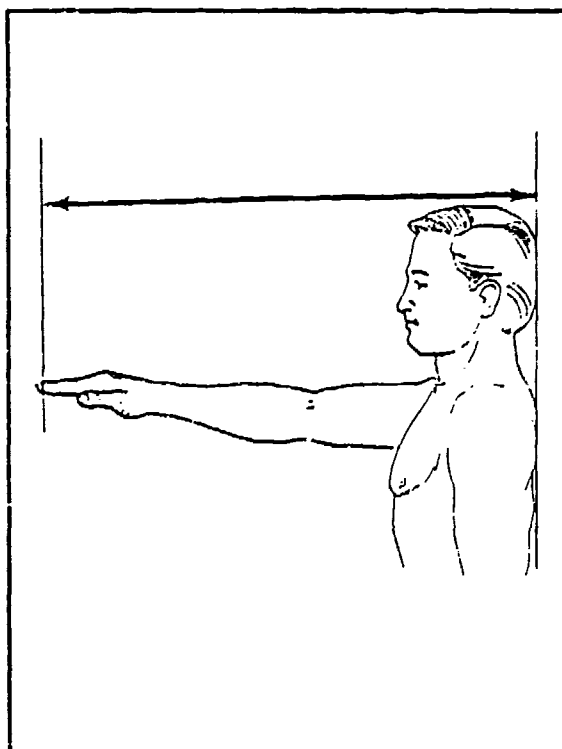
F	FPct	CumF	CumFPct
2	.09	2	.09
1	.05	3	.14
7	.32	10	.45
13	.59	23	1.04
22	1.00	45	2.04
40	1.81	85	3.85
84	3.80	169	7.65
125	5.66	294	13.32
171	7.74	465	21.06
198	8.97	663	30.03
244	11.05	907	41.08
213	9.65	1120	50.72
210	9.51	1330	60.24
250	11.32	1580	71.56
183	8.29	1763	79.85
148	6.70	1911	86.55
105	4.76	2016	91.30
75	3.40	2091	94.70
55	2.49	2146	97.19
24	1.09	2170	98.28
18	.82	2188	99.09
12	.54	2200	99.64
4	.18	2204	99.82
1	.05	2205	99.86
1	.05	2206	99.91
1	.05	2207	99.95
0	.00	2207	99.95
0	.00	2207	99.95
0	.00	2207	99.95
1	.05	2208	100.00

**MALES**

F	FPct	CumF	CumFPct
2	.11	2	.11
0	.00	2	.11
4	.23	6	.34
6	.34	12	.68
19	1.07	31	1.75
26	1.47	57	3.21
36	2.03	93	5.24
52	2.93	145	8.17
91	5.13	236	13.30
14	6.43	350	19.73
46	8.23	496	27.96
81	10.20	677	38.16
78	10.03	855	48.20
80	10.15	1035	58.34
71	9.64	1206	67.98
44	8.12	1350	76.10
26	7.10	1476	83.20
97	5.47	1573	88.67
76	4.28	1649	92.95
47	2.65	1696	95.60
31	1.75	1727	97.35
16	.90	1743	98.25
11	.62	1754	98.87
12	.68	1766	99.55
4	.23	1770	99.77
2	.11	1772	99.89
0	.00	1772	99.89
0	.00	1772	99.89
0	.00	1772	99.89
1	.06	1773	99.94
1	.06	1774	100.00

## (D23) INDEX FINGER REACH

The horizontal distance between the vertical plane of the back and the tip of the right index finger of a subject standing erect with the back against a wall and the arm, hand, and fingers extended forward horizontally is calculated as follows: WRIST-WALL LENGTH plus WRIST-INDEX FINGER LENGTH.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
70.80	27.87	1ST	77.37	30.46	
71.57	28.18	2ND	78.21	30.79	
72.08	28.38	3RD	78.78	31.02	
72.82	28.67	5TH	79.60	31.34	
74.02	29.14	10TH	80.94	31.87	
74.87	29.48	15TH	81.88	32.24	
75.57	29.75	20TH	82.65	32.54	
76.19	29.99	25TH	83.31	32.80	
76.75	30.22	30TH	83.92	33.04	
77.28	30.42	35TH	84.48	33.26	
77.78	30.62	40TH	85.02	33.47	
78.28	30.82	45TH	85.54	33.68	
78.78	31.01	50TH	86.06	33.88	
79.28	31.21	55TH	86.59	34.09	
79.79	31.41	60TH	87.12	34.30	
80.32	31.62	65TH	87.67	34.52	
80.89	31.85	70TH	88.26	34.75	
81.50	32.09	75TH	88.89	35.00	
82.19	32.36	80TH	89.61	35.28	
83.00	32.68	85TH	90.45	35.61	
84.02	33.08	90TH	91.53	36.04	
85.52	33.67	95TH	93.17	36.68	
86.49	34.05	97TH	94.28	37.12	
87.20	34.33	98TH	95.11	37.45	
88.30	34.76	99TH	96.48	37.98	

# INDEX FINGER REACH

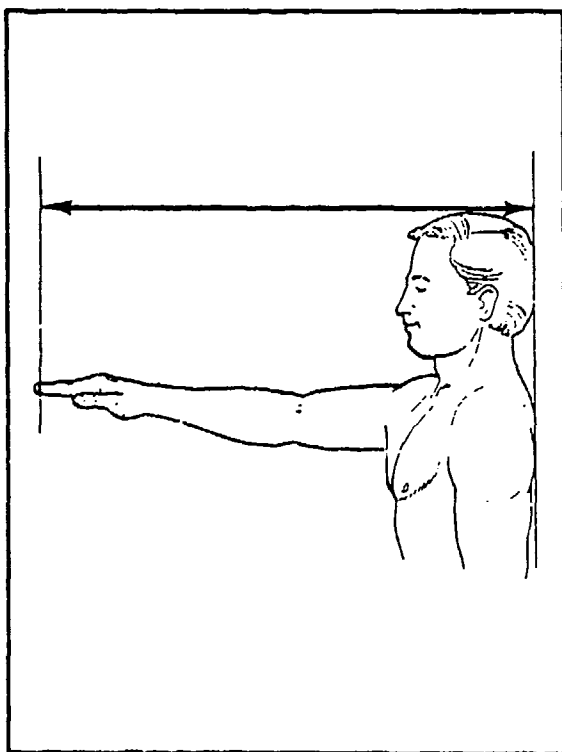
FEMALES			
CM		INCHES	
78.90	MEAN VALUE	31.06	
.08	SE (MEAN)	.03	
3.87	STD DEVIATION	1.52	
.06	SE (STD DEV)	.02	
65.90	MINIMUM	25.94	
96.50	MAXIMUM	37.99	
SYMMETRY---VETA I = .18			
KURTOSIS---VETA II = 3.05			
COEF. OF VARIATION = 4.9%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
86.18	MEAN VALUE	33.93	
.10	SE (MEAN)	.04	
4.14	STD DEVIATION	1.63	
.07	SE (STD DEV)	.03	
71.60	MINIMUM	28.19	
105.10	MAXIMUM	41.38	
SYMMETRY---VETA I = .20			
KURTOSIS---VETA II = 3.25			
COEF. OF VARIATION = 4.8%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	65.55 - 66.55							
1	.05	2	.09	66.55 - 67.55							
4	.18	6	.27	67.55 - 68.55							
7	.32	13	.59	68.55 - 69.55							
8	.36	21	.95	69.55 - 70.55							
20	.91	41	1.86	70.55 - 71.55							
49	2.22	90	4.08	71.55 - 72.55		1	.06	1	.06		
80	3.62	170	7.70	72.55 - 73.55		1	.06	2	.11		
129	5.84	299	13.54	73.55 - 74.55		3	.17	5	.28		
133	6.02	432	19.57	74.55 - 75.55		1	.06	6	.34		
197	8.92	629	28.49	75.55 - 76.55		4	.23	10	.56		
198	8.97	827	37.45	76.55 - 77.55		10	.56	20	1.13		
222	10.05	1049	47.51	77.55 - 78.55		18	1.01	38	2.14		
236	10.69	1285	58.20	78.55 - 79.55		41	2.31	79	4.45		
206	9.33	1491	67.53	79.55 - 80.55		76	4.28	155	8.74		
171	7.74	1662	75.27	80.55 - 81.55		79	4.45	234	13.19		
159	7.20	1821	82.47	81.55 - 82.55		113	6.37	347	19.56		
119	5.39	1940	87.86	82.55 - 83.55		125	7.05	472	26.61		
100	4.53	2040	92.39	83.55 - 84.55		156	8.79	628	35.40		
66	2.99	2106	95.38	84.55 - 85.55		187	10.54	815	45.94		
38	1.72	2144	97.10	85.55 - 86.55		148	8.34	963	54.28		
30	1.36	2174	98.46	86.55 - 87.55		168	9.47	1131	63.75		
17	.77	2191	99.23	87.55 - 88.55		141	7.95	1272	71.70		
9	.41	2200	99.64	88.55 - 89.55		139	7.84	1411	79.54		
5	.23	2205	99.86	89.55 - 90.55		100	5.64	1511	85.17		
1	.05	2206	99.91	90.55 - 91.55		87	4.90	1598	90.08		
0	.00	2206	99.91	91.55 - 92.55		61	3.44	1659	93.52		
0	.00	2206	99.91	92.55 - 93.55		44	2.48	1703	96.00		
1	.05	2207	99.95	93.55 - 94.55		23	1.33	1726	97.29		
0	.00	2207	99.95	94.55 - 95.55		22	1.24	1748	98.53		
1	.05	2208	100.00	95.55 - 96.55		7	.39	1755	98.93		
				96.55 - 97.55		11	.62	1766	99.55		
				97.55 - 98.55		5	.28	1771	99.83		
				98.55 - 99.55		0	.00	1771	99.83		
				99.55 - 100.55		1	.06	1772	99.89		
				100.55 - 101.55		0	.00	1772	99.89		
				101.55 - 102.55		0	.00	1772	99.89		
				102.55 - 103.55		0	.00	1772	99.89		
				103.55 - 104.55		1	.06	1773	99.94		
				104.55 - 105.55		1	.06	1774	100.00		

## (D24) INDEX FINGER REACH, EXTENDED

The horizontal distance between the vertical plane of the back and the tip of the right index finger of a subject standing erect with the left shoulder against a wall and the right shoulder, arm, hand, and fingers extended forward horizontally as far as possible is calculated as follows: WRIST-WALL LENGTH, EXTENDED plus WRIST-INDEX FINGER LENGTH.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
75.92	29.89	1ST	83.19	32.75	
76.86	30.26	2ND	84.18	33.14	
77.47	30.50	3RD	84.85	33.41	
78.32	30.84	5TH	85.81	33.78	
79.68	31.37	10TH	87.34	34.39	
80.61	31.74	15TH	88.40	34.80	
81.37	32.03	20TH	89.24	35.13	
82.03	32.29	25TH	89.97	35.42	
82.63	32.53	30TH	90.62	35.68	
83.18	32.75	35TH	91.22	35.91	
83.71	32.96	40TH	91.79	36.14	
84.23	33.16	45TH	92.34	36.35	
84.74	33.36	50TH	92.88	36.57	
85.26	33.57	55TH	93.42	36.78	
85.79	33.78	60TH	93.96	36.99	
86.34	33.99	65TH	94.53	37.22	
86.92	34.22	70TH	95.12	37.45	
87.55	34.47	75TH	95.77	37.70	
88.26	34.75	80TH	96.50	37.99	
89.09	35.07	85TH	97.36	38.33	
90.14	35.49	90TH	98.47	38.77	
91.72	36.11	95TH	100.22	39.46	
92.76	36.52	97TH	101.45	39.94	
93.53	36.82	98TH	102.40	40.32	
94.74	37.30	99TH	104.02	40.95	

# INDEX FINGER REACH, EXTENDED

FEMALES			
CM		INCHES	
84.85	MEAN VALUE	33.41	
.09	SE (MEAN)	.03	
4.07	STD DEVIATION	1.60	
.06	SE (STD DEV)	.02	
71.10	MINIMUM	27.99	
103.80	MAXIMUM	40.87	
SYMMETRY---VETA I = .15			
KURTOSIS---VETA II = 3.11			
COEF. OF VARIATION = 4.8%			
NUMBER OF SUBJECTS = 2208			

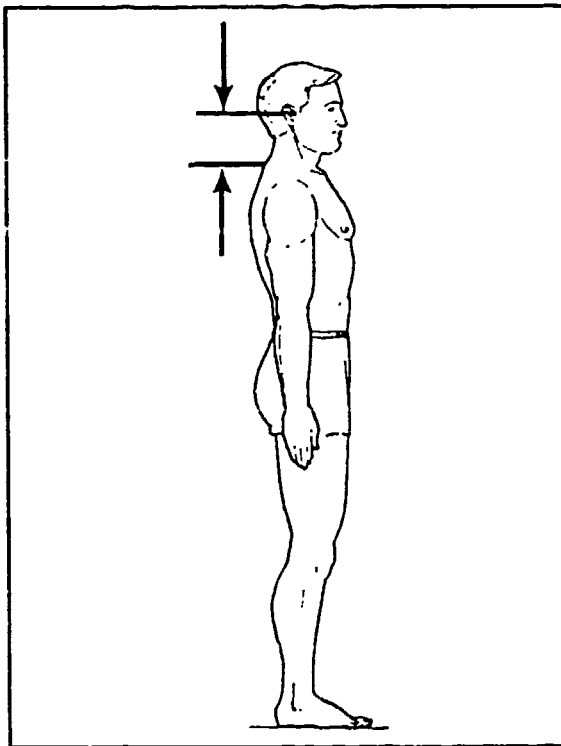
MALES			
CM		INCHES	
92.93	MEAN VALUE	36.59	
.10	SE (MEAN)	.04	
4.38	STD DEVIATION	1.72	
.07	SE (STD DEV)	.03	
78.10	MINIMUM	30.75	
111.40	MAXIMUM	43.86	
SYMMETRY---VETA I = .15			
KURTOSIS---VETA II = 3.28			
COEF. OF VARIATION = 4.7%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	70.55	- 71.55						
1	.05	2	.09	71.55	- 72.55						
3	.14	5	.23	72.55	- 73.55						
4	.18	9	.41	73.55	- 74.55						
8	.36	17	.77	74.55	- 75.55						
19	.86	36	1.63	75.55	- 76.55						
33	1.49	69	3.13	76.55	- 77.55						
47	2.13	116	5.25	77.55	- 78.55						
87	3.94	203	9.19	78.55	- 79.55	2	.11	2	.11		
116	5.25	319	14.45	79.55	- 80.55	1	.06	3	.17		
157	7.11	476	21.56	80.55	- 81.55	2	.11	5	.28		
175	7.93	651	29.48	81.55	- 82.55	1	.06	6	.34		
207	9.38	858	38.86	82.55	- 83.55	3	.17	9	.51		
207	9.38	1065	48.23	83.55	- 84.55	17	.96	26	1.47		
200	9.06	1265	57.29	84.55	- 85.55	22	1.24	48	2.71		
198	8.97	1463	66.26	85.55	- 86.55	29	1.63	77	4.34		
183	8.29	1646	74.55	86.55	- 87.55	43	2.42	120	6.76		
167	7.56	1813	82.11	87.55	- 88.55	56	3.16	176	9.92		
137	6.20	1950	88.32	88.55	- 89.55	114	6.43	290	16.35		
71	3.22	2021	91.53	89.55	- 90.55	102	5.75	392	22.10		
74	3.35	2095	94.88	90.55	- 91.55	124	6.99	516	29.09		
42	1.90	2137	96.78	91.55	- 92.55	161	9.08	677	38.16		
24	1.09	2161	97.87	92.55	- 93.55	164	9.24	841	47.41		
21	.95	2182	98.82	93.55	- 94.55	168	9.47	1009	56.88		
15	.68	2197	99.50	94.55	- 95.55	145	8.17	1154	65.05		
6	.27	2203	99.77	95.55	- 96.55	144	8.12	1298	73.17		
1	.05	2204	99.82	96.55	- 97.55	125	7.05	1423	80.21		
1	.05	2205	99.86	97.55	- 98.55	104	5.86	1527	86.08		
2	.09	2207	99.95	98.55	- 99.55	78	4.40	1605	90.47		
0	.00	2207	99.95	99.55	- 100.55	51	2.87	1656	93.35		
0	.00	2237	99.95	100.55	- 101.55	48	2.71	1704	96.05		
0	.00	2207	99.95	101.55	- 102.55	24	1.35	1728	97.41		
0	.00	2207	99.95	102.55	- 103.55	16	.90	1744	98.31		
1	.05	2208	100.00	103.55	- 104.55	7	.39	1751	98.70		
				104.55	- 105.55	7	.39	1758	99.10		
				105.55	- 106.55	11	.62	1769	99.72		
				106.55	- 107.55	2	.11	1771	99.83		
				107.55	- 108.55	1	.06	1772	99.89		
				108.55	- 109.55	0	.00	1772	99.89		
				109.55	- 110.55	0	.00	1772	99.89		
				110.55	- 111.55	2	.11	1774	100.00		



## (D25) NECK LINK

The vertical distance between the cervicale landmark at the base of the back of the neck and the tracion landmark on the cartilaginous flap of flesh in front of the earhole is calculated as follows: STATURE minus TRACION-TOP OF HEAD minus CERVICALE HEIGHT.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
7.37	2.90	1ST	7.79	3.07	
7.63	3.00	2ND	8.15	3.21	
7.80	3.07	3RD	8.37	3.30	
8.04	3.17	5TH	8.67	3.41	
8.42	3.31	10TH	9.11	3.59	
8.68	3.42	15TH	9.40	3.70	
8.88	3.50	20TH	9.62	3.79	
9.06	3.57	25TH	9.81	3.86	
9.22	3.63	30TH	9.98	3.93	
9.37	3.69	35TH	10.14	3.99	
9.51	3.75	40TH	10.29	4.05	
9.65	3.80	45TH	10.43	4.11	
9.79	3.85	50TH	10.57	4.16	
9.92	3.91	55TH	10.71	4.22	
10.06	3.96	60TH	10.85	4.27	
10.20	4.02	65TH	10.99	4.33	
10.35	4.07	70TH	11.14	4.39	
10.51	4.14	75TH	11.31	4.45	
10.69	4.21	80TH	11.49	4.52	
10.90	4.29	85TH	11.70	4.61	
11.16	4.40	90TH	11.96	4.71	
11.56	4.55	95TH	12.35	4.86	
11.82	4.65	97TH	12.60	4.96	
12.02	4.73	98TH	12.78	5.03	
12.33	4.85	99TH	13.06	5.14	

# NECK LINK

## FEMALES

CM		INCHES
9.79	MEAN VALUE	3.86
.02	SE(MEAN)	.00
1.07	STD DEVIATION	.42
.02	SE(STD DEV)	.00
5.90	MINIMUM	2.32
13.30	MAXIMUM	5.24

SYMMETRY---VETA I = .07  
 KURTOSIS---VETA II = 3.06  
 COEF. OF VARIATION = 10.9%  
 NUMBER OF SUBJECTS = 2208

## MALES

CM		INCHES
10.55	MEAN VALUE	4.15
.03	SE(MEAN)	.00
1.12	STD DEVIATION	.44
.02	SE(STD DEV)	.00
6.80	MINIMUM	2.68
14.60	MAXIMUM	5.75

SYMMETRY---VETA I = -.09  
 KURTOSIS---VETA II = 3.13  
 COEF. OF VARIATION = 10.6%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
1	.05	1	.05
1	.05	2	.09
1	.05	3	.14
0	.00	3	.14
1	.05	4	.18
2	.09	6	.27
6	.27	12	.54
9	.41	21	.95
13	.59	34	1.54
24	1.09	58	2.63
38	1.72	96	4.35
33	1.49	129	5.84
60	2.72	189	8.56
82	3.71	271	12.27
92	4.17	363	16.44
115	5.21	478	21.65
129	5.84	607	27.49
152	6.88	759	34.38
165	7.47	924	41.85
153	6.93	1077	48.78
157	7.11	1234	55.89
165	7.47	1399	63.36
155	7.02	1554	70.38
142	6.43	1696	76.81
98	4.44	1794	81.25
100	4.53	1894	85.78
73	3.31	1967	89.09
74	3.35	2041	92.44
54	2.45	2095	94.88
36	1.63	2131	96.51
33	1.49	2164	98.01
11	.50	2175	98.51
10	.45	2185	98.96
9	.41	2194	99.37
2	.09	2196	99.46
5	.23	2201	99.68
2	.09	2203	99.77
5	.23	2208	100.00

### CENTIMETERS

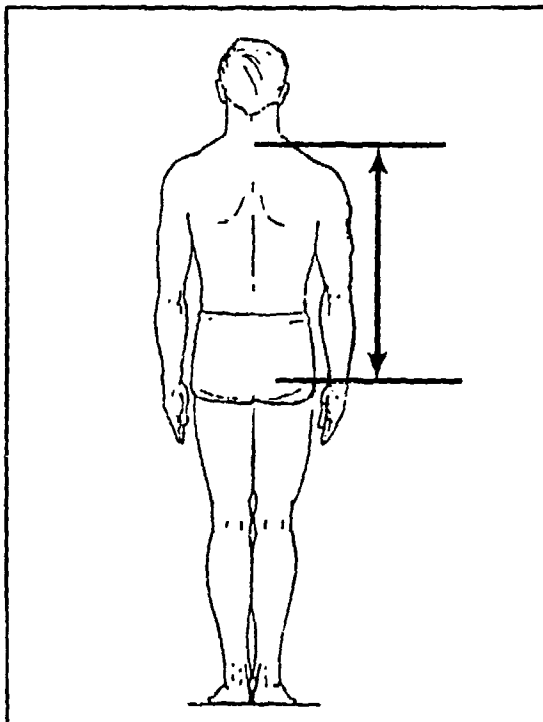
5.75 - 5.95
5.95 - 6.15
6.15 - 6.35
6.35 - 6.55
6.55 - 6.75
6.75 - 6.95
6.95 - 7.15
7.15 - 7.35
7.35 - 7.55
7.55 - 7.75
7.75 - 7.95
7.95 - 8.15
8.15 - 8.35
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8.75 - 8.95
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13.55 - 13.75
13.75 - 13.95
13.95 - 14.15
14.15 - 14.35
14.35 - 14.55
14.55 - 14.75

### MALES

F	FPct	CumF	CumFPct
2	.11	2	.11
1	.06	3	.17
2	.11	5	.28
4	.23	9	.51
8	.45	17	.96
9	.51	26	1.47
8	.45	34	1.92
15	.85	49	2.76
26	1.47	75	4.23
28	1.58	103	5.81
32	1.80	135	7.61
49	2.76	184	10.37
54	3.04	238	13.42
94	5.30	332	18.71
83	4.68	415	23.39
111	6.26	526	29.65
108	6.09	634	35.74
116	6.54	750	42.28
119	6.71	869	48.99
136	7.67	1005	56.65
105	5.92	1110	62.57
128	7.22	1238	69.79
123	6.93	1361	76.72
97	5.47	1458	82.19
79	4.45	1537	86.64
49	2.76	1586	89.40
53	2.99	1639	92.39
47	2.65	1686	95.04
28	1.58	1714	96.62
25	1.41	1739	98.03
12	.68	1751	98.70
8	.45	1759	99.15
4	.23	1763	99.38
4	.23	1767	99.61
2	.11	1769	99.72
2	.11	1771	99.83
1	.06	1772	99.89
1	.06	1773	99.94
0	.00	1773	99.94
1	.06	1774	100.00

## (D26) NECK-BUTTOCK LENGTH

The vertical distance between the cervicale landmark at the base of the back of the neck and the level of the maximum protrusion of the right buttock is calculated as follows: CERVICALE HEIGHT minus BUTTOCK HEIGHT.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
50.01	19.69	1ST	55.50	21.85	
50.76	19.99	2ND	56.48	22.23	
51.25	20.18	3RD	57.09	22.48	
51.92	20.44	5TH	57.90	22.80	
52.97	20.86	10TH	59.14	23.28	
53.70	21.14	15TH	59.95	23.60	
54.29	21.37	20TH	60.59	23.85	
54.81	21.58	25TH	61.13	24.07	
55.27	21.76	30TH	61.61	24.26	
55.71	21.93	35TH	62.05	24.43	
56.12	22.09	40TH	62.47	24.59	
56.52	22.25	45TH	62.86	24.75	
56.92	22.41	50TH	63.25	24.90	
57.33	22.57	55TH	63.64	25.06	
57.74	22.73	60TH	64.04	25.21	
58.16	22.90	65TH	64.44	25.37	
58.61	23.07	70TH	64.86	25.54	
59.09	23.26	75TH	65.32	25.71	
59.63	23.48	80TH	65.82	25.91	
60.26	23.72	85TH	66.41	26.14	
61.04	24.03	90TH	67.14	26.43	
62.17	24.48	95TH	68.24	26.86	
62.88	24.76	97TH	68.95	27.14	
63.39	24.96	98TH	69.47	27.35	
64.16	25.26	99TH	70.30	27.68	

# NECK-BUTTOCK LENGTH

## FEMALES

CM		INCHES
56.96	MEAN VALUE	22.43
.07	SE (MEAN)	.03
3.10	STD DEVIATION	1.22
.05	SE (STD DEV)	.02
47.80	MINIMUM	18.82
67.30	MAXIMUM	26.50

SYMMETRY---VETA I	=	.06
KURTOSIS---VETA II	=	2.79
COEF. OF VARIATION	=	5.4%
NUMBER OF SUBJECTS	=	2208

## MALES

CM		INCHES
63.19	MEAN VALUE	24.88
.07	SE (MEAN)	.03
3.13	STD DEVIATION	1.23
.05	SE (STD DEV)	.02
52.70	MINIMUM	20.75
72.80	MAXIMUM	28.66

SYMMETRY---VETA I	=	-.10
KURTOSIS---VETA II	=	2.98
COEF. OF VARIATION	=	4.9%
NUMBER OF SUBJECTS	=	1774

## FREQUENCY TABLE

### FEMALES

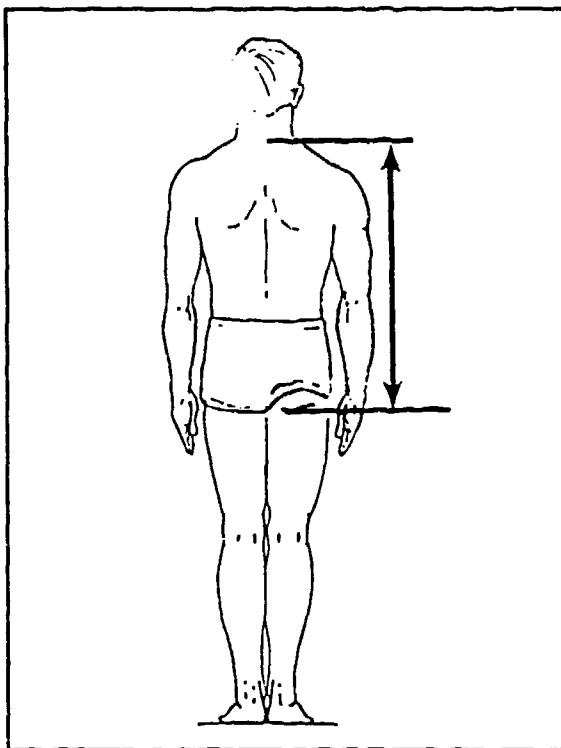
F	FPct	CumF	CumFPct
3	.14	3	.14
3	.14	6	.27
2	.09	8	.36
10	.45	18	.82
11	.50	29	1.31
11	.50	40	1.81
20	.91	60	2.72
40	1.81	100	4.53
43	1.95	143	6.48
60	2.72	203	9.19
53	2.40	256	11.59
75	3.40	331	14.99
101	4.57	432	19.57
127	5.75	559	25.32
107	4.85	666	30.16
124	5.62	790	35.78
122	5.53	912	41.30
131	5.93	1043	47.24
147	6.66	1190	53.89
133	6.02	1323	59.92
126	5.71	1449	65.63
130	5.89	1579	71.51
116	5.25	1695	76.77
89	4.03	1784	80.80
98	4.44	1882	85.24
83	3.76	1965	88.99
46	2.08	2011	91.08
55	2.49	2066	93.57
42	1.90	2108	95.47
28	1.27	2136	96.74
20	.91	2156	97.64
19	.86	2175	98.51
14	.63	2189	99.14
8	.36	2197	99.50
5	.23	2202	99.73
4	.18	2206	99.91
0	.00	2206	99.91
1	.05	2207	99.95
0	.00	2207	99.95
1	.05	2208	100.00

### MALES

F	FPct	CumF	CumFPct
47.75 - 48.25			
48.25 - 48.75			
48.75 - 49.25			
49.25 - 49.75			
49.75 - 50.25			
50.25 - 50.75			
50.75 - 51.25			
51.25 - 51.75			
51.75 - 52.25			
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68.25 - 68.75			
68.75 - 69.25			
69.25 - 69.75			
69.75 - 70.25			
70.25 - 70.75			
70.75 - 71.25			
71.25 - 71.75			
71.75 - 72.25			
72.25 - 72.75			
72.75 - 73.25			
1	.06	1	.06
0	.00	1	.06
1	.06	2	.11
4	.23	6	.31
2	.11	8	.45
6	.34	14	.79
8	.45	22	1.24
9	.51	31	1.75
9	.51	40	2.25
21	1.18	61	3.44
21	1.18	82	4.62
23	1.30	105	5.92
35	1.97	140	7.89
44	2.48	184	10.37
48	2.71	232	13.08
56	3.16	288	16.23
98	5.52	386	21.76
83	4.68	469	26.44
97	5.47	566	31.91
114	6.43	680	38.33
98	5.52	778	43.86
111	6.26	889	50.11
107	6.03	996	56.14
117	6.60	1113	62.74
105	5.92	1218	68.66
90	5.07	1308	73.73
101	5.69	1409	79.43
77	4.34	1486	83.77
51	2.87	1537	86.64
64	3.61	1601	90.25
49	2.76	1650	93.01
37	2.09	1687	95.10
26	1.47	1713	96.56
25	1.41	1738	97.97
8	.45	1746	98.42
7	.39	1753	98.82
9	.51	1762	99.32
5	.28	1767	99.61
3	.17	1770	99.77
2	.11	1772	99.69
1	.06	1773	99.94
1	.06	1774	100.00

## (D27) NECK-GLUTEAL FURROW LENGTH

The vertical distance between the cervicale landmark at the base of the back of the neck and the gluteal furrow landmark at the juncture of the right buttock with the back of the thigh is calculated as follows: CERVICALE HEIGHT minus GLUTEAL FURROW HEIGHT.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
59.35	23.37	1ST	62.77	24.71	
60.16	23.68	2ND	63.72	25.09	
60.65	23.88	3RD	64.32	25.32	
61.33	24.14	5TH	65.12	25.64	
62.36	24.55	10TH	66.35	26.12	
63.07	24.83	15TH	67.17	26.45	
63.65	25.06	20TH	67.82	26.70	
64.15	25.26	25TH	68.37	26.92	
64.61	25.44	30TH	68.86	27.11	
65.04	25.61	35TH	69.31	27.29	
65.45	25.77	40TH	69.73	27.45	
65.86	25.93	45TH	70.14	27.62	
66.26	26.09	50TH	70.55	27.77	
66.68	26.25	55TH	70.95	27.93	
67.10	26.42	60TH	71.35	28.09	
67.53	26.59	65TH	71.77	28.26	
68.00	26.77	70TH	72.21	28.43	
68.51	26.97	75TH	72.68	28.62	
69.08	27.20	80TH	73.21	28.82	
69.74	27.46	85TH	73.82	29.06	
70.56	27.78	90TH	74.58	29.36	
71.75	28.25	95TH	75.72	29.81	
72.48	28.53	97TH	76.45	30.10	
72.99	28.73	98TH	76.99	30.31	
73.72	29.02	99TH	77.84	30.64	

# NECK-GLUTEAL FURROW LENGTH

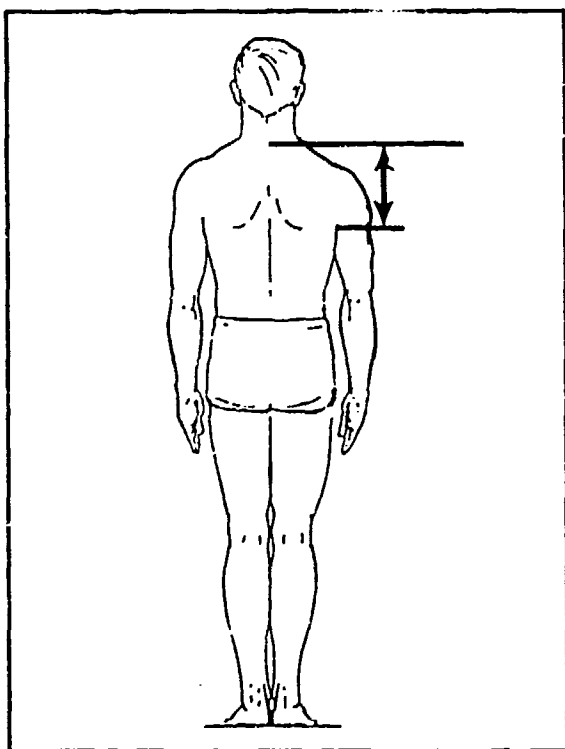
FEMALES			
CM		INCHES	
66.36	MEAN VALUE	26.13	
.07	SE (MEAN)	.03	
3.14	STD DEVIATION	1.24	
.05	SE (STD DEV)	.02	
56.90	MINIMUM	22.40	
76.80	MAXIMUM	30.24	
SYMMETRY---VETA I = .11			
KURTOSIS---VETA II = 2.81			
COEF. OF VARIATION = 4.7%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
70.50	MEAN VALUE	27.75	
.08	SE (MEAN)	.03	
3.21	STD DEVIATION	1.26	
.05	SE (STD DEV)	.02	
59.90	MINIMUM	23.58	
82.70	MAXIMUM	32.56	
SYMMETRY---VETA I = -.08			
KURTOSIS---VETA II = 3.08			
COEF. OF VARIATION = 4.6%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES				CENTIMETERS				MALES			
F	FPct	CumF	CumFPct					F	FPct	CumF	CumFPct
2	.09	2	.09	56.75 -	57.25						
1	.05	3	.14	57.25 -	57.75						
5	.23	8	.36	57.75 -	58.25						
4	.18	12	.54	58.25 -	58.75						
7	.32	19	.86	58.75 -	59.25						
11	.50	30	1.36	59.25 -	59.75						
21	.95	51	2.31	59.75 -	60.25						
21	.95	72	3.26	60.25 -	60.75			1	.06	1	.06
24	1.09	96	4.35	60.75 -	61.25			0	.00	1	.06
42	1.90	138	6.25	61.25 -	61.75			6	.34	7	.39
69	3.13	207	9.38	61.75 -	62.25			3	.17	10	.56
69	3.13	276	12.50	62.25 -	62.75			5	.28	15	.85
84	3.80	360	16.30	62.75 -	63.25			1	.06	16	.90
93	4.21	453	20.52	63.25 -	63.75			12	.68	28	1.58
123	5.57	576	26.09	63.75 -	64.25			9	.51	37	2.09
133	6.02	709	32.11	64.25 -	64.75			12	.68	49	2.76
132	5.98	841	38.09	64.75 -	65.25			25	1.41	74	4.17
125	5.66	966	43.75	65.25 -	65.75			25	1.41	99	5.58
146	6.61	1112	50.36	65.75 -	66.25			24	1.35	123	6.93
110	4.98	1222	55.34	66.25 -	66.75			45	2.54	168	9.47
123	5.57	1345	60.91	66.75 -	67.25			52	2.93	220	12.40
138	6.25	1483	67.16	67.25 -	67.75			59	3.33	279	15.73
118	5.34	1601	72.51	67.75 -	68.25			59	3.33	338	19.05
103	4.66	1704	77.17	68.25 -	68.75			71	4.00	409	23.06
94	4.26	1798	81.43	68.75 -	69.25			98	5.52	507	28.58
93	4.21	1891	85.64	69.25 -	69.75			95	5.36	602	33.93
69	3.13	1960	88.77	69.75 -	70.25			108	6.09	710	40.02
51	2.31	2011	91.08	70.25 -	70.75			107	6.03	817	46.05
59	2.67	2070	93.75	70.75 -	71.25			116	6.54	933	52.59
27	1.22	2097	94.97	71.25 -	71.75			110	6.20	1043	58.79
34	1.54	2131	96.51	71.75 -	72.25			103	5.81	1146	64.60
23	1.04	2154	97.55	72.25 -	72.75			109	6.14	1255	70.74
17	.77	2171	98.32	72.75 -	73.25			104	5.86	1359	76.61
17	.77	2188	99.09	73.25 -	73.75			70	3.95	1429	80.55
7	.32	2195	99.41	73.75 -	74.25			84	4.74	1513	85.29
7	.32	2202	99.73	74.25 -	74.75			57	3.21	1570	88.50
1	.05	2203	99.77	74.75 -	75.25			40	2.25	1610	90.76
3	.14	2206	99.91	75.25 -	75.75			43	2.42	1653	93.18
1	.05	2207	99.95	75.75 -	76.25			28	1.58	1681	94.76
0	.00	2207	99.95	76.25 -	76.75			26	1.47	1707	96.22
1	.05	2208	100.00	76.75 -	77.25			26	1.47	1733	97.69
				77.25 -	77.75			11	.62	1744	98.31
				77.75 -	78.25			12	.68	1756	98.99
				78.25 -	78.75			9	.51	1765	99.49
				78.75 -	79.25			3	.17	1768	99.66
				79.25 -	79.75			1	.06	1769	99.72
				79.75 -	80.25			2	.11	1771	99.83
				80.25 -	80.75			2	.11	1773	99.94
				80.75 -	81.25			0	.00	1773	99.94
				81.25 -	81.75			0	.00	1773	99.94
				81.75 -	82.25			0	.00	1773	99.94
				82.25 -	82.75			1	.06	1774	100.00

## (D28) NECK-SCYE LENGTH

The vertical distance between the cervicale landmark at the base of the back of the neck and the anterior scye landmark at the bottom of the axillary fold is calculated as follows: CERVICALE HEIGHT minus AXILLA HEIGHT.



THE PERCENTILES					
FEMALES			MALES		
CM	INCHES		CM	INCHES	
14.36	5.65	1ST	16.67	6.56	
14.75	5.81	2ND	17.01	6.70	
14.99	5.90	3RD	17.24	6.79	
15.30	6.02	5TH	17.55	6.91	
15.77	6.21	10TH	18.04	7.10	
16.08	6.33	15TH	18.37	7.23	
16.33	6.43	2 TH	18.64	7.34	
16.54	6.51	25TH	18.87	7.43	
16.73	6.59	30TH	19.08	7.51	
16.91	6.66	35TH	19.28	7.59	
17.08	6.72	40TH	19.46	7.66	
17.25	6.79	45TH	19.64	7.73	
17.41	6.86	50TH	19.87	7.80	
17.58	6.92	55TH	20.00	7.87	
17.75	6.99	60TH	20.18	7.94	
17.93	7.06	65TH	20.37	8.02	
18.12	7.13	70TH	20.57	8.10	
18.32	7.21	75TH	20.78	8.18	
18.55	7.31	80TH	21.02	8.28	
18.82	7.41	85TH	21.31	8.39	
19.16	7.54	90TH	21.67	8.53	
19.65	7.74	95TH	22.22	8.75	
19.96	7.86	97TH	22.59	8.89	
20.18	7.94	98TH	22.87	9.00	
20.50	8.07	99TH	23.32	9.18	

# NECK-SCYE LENGTH

FEMALES			
<u>CM</u>		<u>INCHES</u>	
17.43	MEAN VALUE	6.86	
.03	SE(MEAN)	.00	
1.32	STD DEVIATION	.52	
.02	SE(STD DEV)	.00	
12.10	MINIMUM	4.76	
21.40	MAXIMUM	8.43	
SYMMETRY---VETA I		=	.00
KURTOSIS---VETA II		=	3.00
COEF. OF VARIATION		=	7.6%
NUMBER OF SUBJECTS		=	2208

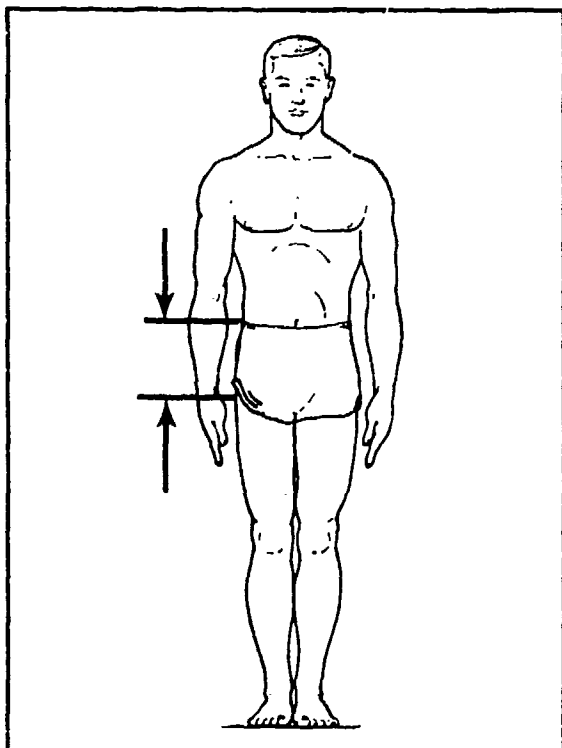
MALES			
<u>CM</u>		<u>INCHES</u>	
19.85	MEAN VALUE	7.82	
.03	SE(MEAN)	.00	
1.42	STD DEVIATION	.56	
.02	SE(STD DEV)	.00	
14.90	MINIMUM	5.87	
27.30	MAXIMUM	10.75	
SYMMETRY---VETA I		=	.18
KURTOSIS---VETA II		=	3.36
COEF. OF VARIATION		=	7.2%
NUMBER OF SUBJECTS		=	1774

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct	CumF	CumFPct		
1	.05	1	.05	11.75 -	12.25						
1	.05	2	.09	12.25 -	12.75						
0	.00	2	.09	12.75 -	13.25						
4	.18	6	.27	13.25 -	13.75						
10	.45	16	.72	13.75 -	14.25						
29	1.31	45	2.04	14.25 -	14.75						
66	2.99	111	5.03	14.75 -	15.25	1	.06	1	.06		
94	4.26	205	9.28	15.25 -	15.75	1	.06	2	.11		
197	8.92	402	18.21	15.75 -	16.25	5	.28	7	.39		
270	12.23	672	30.43	16.25 -	16.75	14	.79	21	1.18		
306	13.86	978	44.29	16.75 -	17.25	34	1.92	55	3.10		
354	16.03	1332	60.33	17.25 -	17.75	60	3.38	115	6.48		
298	13.50	1630	73.82	17.75 -	18.25	124	6.99	239	13.47		
218	9.87	1848	83.70	18.25 -	18.75	152	8.57	391	22.04		
169	7.65	2017	91.35	18.75 -	19.25	211	11.89	602	33.93		
100	4.53	2117	95.88	19.25 -	19.75	261	14.71	863	48.65		
51	2.31	2168	98.19	19.75 -	20.25	238	13.42	1101	62.06		
28	1.27	2196	99.46	20.25 -	20.75	208	11.72	1309	73.79		
11	.50	2207	99.95	20.75 -	21.25	178	10.03	1487	83.82		
1	.05	2208	100.00	21.25 -	21.75	122	6.88	1609	90.70		
				21.75 -	22.25	75	4.23	1684	94.93		
				22.25 -	22.75	52	2.93	1736	97.86		
				22.75 -	23.25	18	1.01	1754	98.87		
				23.25 -	23.75	12	.68	1766	99.55		
				23.75 -	24.25	3	.17	1769	99.72		
				24.25 -	24.75	3	.17	1772	99.89		
				24.75 -	25.25	1	.06	1773	99.94		
				25.25 -	25.75	0	.00	1773	99.94		
				25.75 -	26.25	0	.00	1773	99.94		
				26.25 -	26.75	0	.00	1773	99.94		
				26.75 -	27.25	0	.00	1773	99.94		
				27.25 -	27.75	1	.06	1774	100.00		



## (D29) PELVIC LINK

The vertical distance between the iliocristale landmark on the right side of the pelvis and the level of the trochanterion landmark on the right hip is calculated as follows: ILIOCRISTALE HEIGHT minus TROCHANTERION HEIGHT.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
9.05	3.56	1ST	10.76	4.24
9.53	3.75	2ND	11.27	4.44
9.83	3.87	3RD	11.57	4.56
10.22	4.02	5TH	11.97	4.71
10.81	4.25	10TH	12.54	4.94
11.19	4.40	15TH	12.92	5.09
11.48	4.52	20TH	13.22	5.20
11.73	4.62	25TH	13.47	5.30
11.95	4.71	30TH	13.70	5.39
12.16	4.79	35TH	13.91	5.48
12.35	4.86	40TH	14.11	5.56
12.53	4.93	45TH	14.30	5.63
12.72	5.01	50TH	14.50	5.71
12.90	5.08	55TH	14.69	5.78
13.09	5.15	60TH	14.89	5.86
13.28	5.23	65TH	15.10	5.94
13.49	5.31	70TH	15.32	6.03
13.71	5.40	75TH	15.55	6.12
13.96	5.50	80TH	15.82	6.23
14.26	5.61	85TH	16.13	6.35
14.65	5.77	90TH	16.52	6.50
15.24	6.00	95TH	17.08	6.72
15.65	6.16	97TH	17.43	6.86
15.96	6.28	98TH	17.68	6.96
16.47	6.48	99TH	18.04	7.10

# PELVIC LINK

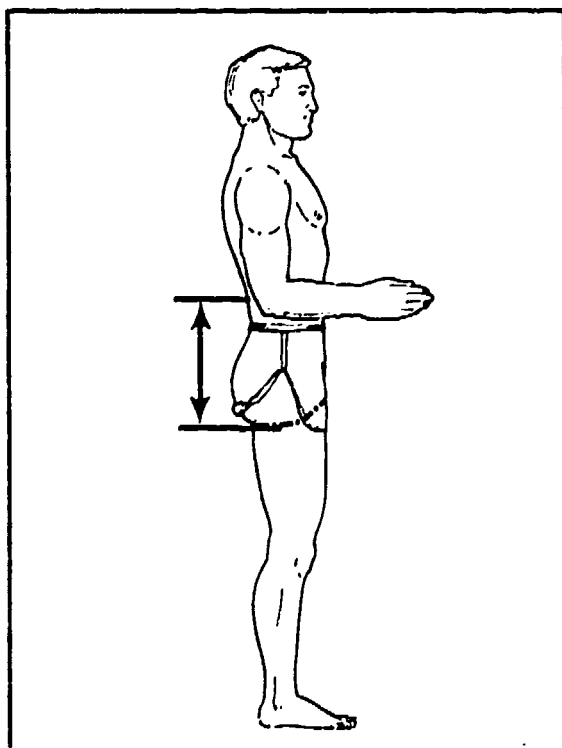
FEMALES			
CM		INCHES	
12.72	MEAN VALUE	5.01	
.03	SE (MEAN)	.00	
1.52	STD DEVIATION	.60	
.02	SE (STD DEV)	.00	
8.10	MINIMUM	3.19	
18.10	MAXIMUM	7.13	
SYMMETRY---VETA I = .05			
KURTOSIS---VETA II = 3.21			
COEF. OF VARIATION = 11.9%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
14.51	MEAN VALUE	5.71	
.04	SE (MEAN)	.00	
1.56	STD DEVIATION	.61	
.03	SE (STD DEV)	.00	
7.10	MINIMUM	2.80	
20.60	MAXIMUM	8.11	
SYMMETRY---VETA I = -.06			
KURTOSIS---VETA II = 3.26			
COEF. OF VARIATION = 10.7%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE									
FEMALES					MALES				
F	FPot	CumF	CumFPot	CENTIMETERS	F	FPot	CumF	CumFPot	
				6.75 - 7.25	1	.06	1	.06	
				7.25 - 7.75	0	.00	1	.06	
				7.75 - 8.25	0	.00	1	.06	
				8.25 - 8.75	0	.00	1	.06	
				8.75 - 9.25	0	.00	1	.06	
				9.25 - 9.75	2	.11	3	.17	
				9.75 - 10.25	4	.23	7	.39	
				10.25 - 10.75	9	.51	16	.90	
				10.75 - 11.25	21	1.18	37	2.09	
				11.25 - 11.75	33	1.86	70	3.95	
				11.75 - 12.25	54	3.04	124	6.99	
				12.25 - 12.75	99	5.58	223	12.57	
				12.75 - 13.25	120	6.76	343	19.33	
				13.25 - 13.75	215	12.12	558	31.45	
				13.75 - 14.25	199	11.22	757	42.67	
				14.25 - 14.75	240	13.53	997	56.20	
				14.75 - 15.25	234	13.19	1231	69.39	
				15.25 - 15.75	178	10.03	1409	79.43	
				15.75 - 16.25	118	6.65	1527	86.08	
				16.25 - 16.75	105	5.92	1632	92.00	
				16.75 - 17.25	67	3.78	1699	95.77	
				17.25 - 17.75	46	2.59	1745	98.37	
				17.75 - 18.25	19	1.07	1764	99.44	
				18.25 - 18.75	7	.39	1771	99.83	
				18.75 - 19.25	2	.11	1773	99.94	
				19.25 - 19.75	0	.00	1773	99.94	
				19.75 - 20.25	0	.00	1773	99.94	
				20.25 - 20.75	1	.06	1774	100.00	

## (D30) RISE (NATURAL INDENTATION)

The vertical distance between the level of the waist at its natural indentation and the crotch of a subject standing erect is calculated as follows: **WAIST HEIGHT (NATURAL INDENTATION) minus CROTCH HEIGHT.**



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
22.92	9.02	1ST	24.20	9.53
23.66	9.32	2ND	24.75	9.74
24.11	9.49	3RD	25.10	9.88
24.68	9.72	5TH	25.58	10.07
25.53	10.05	10TH	26.31	10.36
26.09	10.27	15TH	26.81	10.55
26.53	10.44	20TH	27.20	10.71
26.91	10.59	25TH	27.54	10.84
27.25	10.73	30TH	27.84	10.96
27.57	10.85	35TH	28.13	11.07
27.88	10.98	40TH	28.39	11.18
28.18	11.09	45TH	28.65	11.28
28.48	11.21	50TH	28.91	11.38
28.78	11.33	55TH	29.17	11.49
29.09	11.45	60TH	29.44	11.59
29.41	11.58	65TH	29.72	11.70
29.75	11.71	70TH	30.02	11.82
30.12	11.86	75TH	30.34	11.95
30.54	12.03	80TH	30.71	12.09
31.03	12.22	85TH	31.16	12.27
31.64	12.45	90TH	31.74	12.50
32.51	12.80	95TH	32.65	12.86
33.04	13.01	97TH	33.29	13.11
33.41	13.15	98TH	33.78	13.30
33.93	13.36	99TH	34.61	13.63

# RISE (NATURAL INDENTATION)

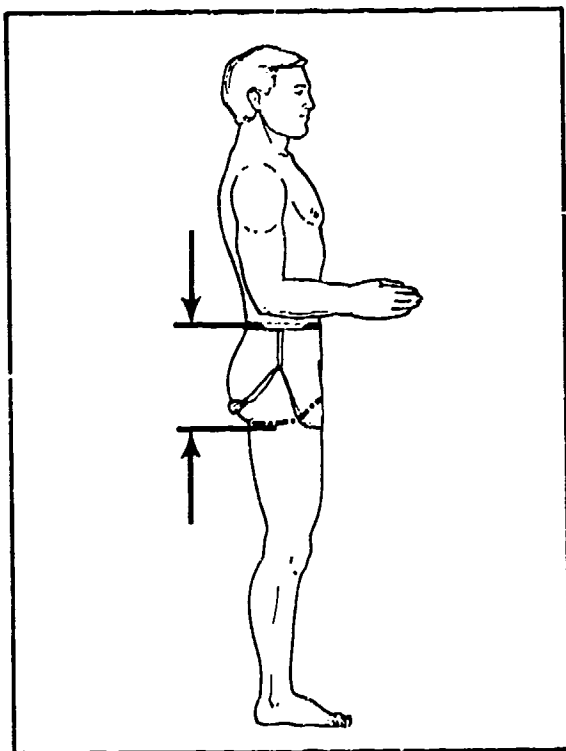
FEMALES			
CM		INCHES	
28.52	MEAN VALUE	11.23	
.05	SE (MEAN)	.02	
2.37	STD DEVIATION	.93	
.04	SE (STD DEV)	.00	
19.60	MINIMUM	7.72	
37.50	MAXIMUM	14.76	
SYMMETRY---VETA I = .03			
KURTOSIS---VETA II = 3.01			
COEF. OF VARIATION = 8.3%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
28.99	MEAN VALUE	11.41	
.05	SE (MEAN)	.02	
2.15	STD DEVIATION	.84	
.04	SE (STD DEV)	.00	
22.00	MINIMUM	8.66	
37.80	MAXIMUM	14.88	
SYMMETRY---VETA I = .25			
KURTOSIS---VETA II = 3.36			
COEF. OF VARIATION = 7.4%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	19.25 -	19.75						
0	.00	1	.05	19.75 -	20.25						
0	.00	1	.05	20.25 -	20.75						
0	.00	1	.05	20.75 -	21.25						
5	.23	6	.27	21.25 -	21.75						
1	.05	7	.32	21.75 -	22.25	1	.06	1	.06		
10	.45	17	.77	22.25 -	22.75	2	.11	3	.17		
16	.72	33	1.49	22.75 -	23.25	1	.06	4	.23		
11	.50	44	1.99	23.25 -	23.75	5	.28	9	.51		
35	1.59	79	3.58	23.75 -	24.25	10	.56	19	1.07		
44	1.99	123	5.57	24.25 -	24.75	14	.79	33	1.86		
61	2.76	184	8.33	24.75 -	25.25	32	1.80	65	3.66		
80	3.62	264	11.96	25.25 -	25.75	41	2.31	106	5.98		
101	4.57	365	16.53	25.75 -	26.25	52	2.93	158	8.91		
130	5.89	495	22.42	26.25 -	26.75	92	5.19	250	14.09		
150	6.79	645	29.21	26.75 -	27.25	104	5.86	354	19.95		
178	8.06	823	37.27	27.25 -	27.75	161	9.08	515	29.03		
188	8.51	1011	45.79	27.75 -	28.25	145	8.17	660	37.20		
208	9.42	1219	55.21	28.25 -	28.75	176	9.92	836	47.13		
175	7.93	1394	63.13	28.75 -	29.25	178	10.03	1014	57.16		
160	7.25	1554	70.38	29.25 -	29.75	154	8.68	1168	65.84		
137	6.20	1691	76.59	29.75 -	30.25	130	7.33	1298	73.17		
129	5.84	1820	82.43	30.25 -	30.75	125	7.05	1423	80.21		
111	5.03	1931	87.45	30.75 -	31.25	94	5.30	1517	85.51		
77	3.49	2008	90.94	31.25 -	31.75	74	4.17	1591	89.68		
62	2.81	2070	93.75	31.75 -	32.25	68	3.83	1659	93.52		
45	2.04	2115	95.79	32.25 -	32.75	37	2.09	1696	95.60		
40	1.81	2155	97.60	32.75 -	33.25	26	1.47	1722	97.07		
27	1.22	2182	98.82	33.25 -	33.75	16	.90	1738	97.97		
14	.63	2196	99.46	33.75 -	34.25	11	.62	1749	98.59		
4	.18	2200	99.64	34.25 -	34.75	9	.51	1758	99.10		
4	.18	2204	99.82	34.75 -	35.25	7	.39	1765	99.49		
1	.05	2205	99.86	35.25 -	35.75	4	.23	1769	99.72		
1	.05	2206	99.91	35.75 -	36.25	2	.11	1771	99.83		
1	.05	2207	99.95	36.25 -	36.75	1	.06	1772	99.89		
0	.00	2207	99.95	36.75 -	37.25	0	.00	1772	99.89		
1	.05	2208	100.00	37.25 -	37.75	1	.06	1773	99.94		
				37.75 -	38.25	1	.06	1774	100.00		

## (D31) RISE (OMPHALION)

The vertical distance between the level of the waist at the navel (omphalion) and the crotch of a subject standing erect is calculated as follows: **WAIST HEIGHT (OMPHALION)** minus **CROTCH HEIGHT**.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
16.65	6.55	1ST	17.99	7.08	
17.21	6.78	2ND	18.43	7.26	
17.56	6.91	3RD	18.73	7.37	
18.02	7.10	5TH	19.15	7.54	
18.72	7.37	10TH	19.82	7.80	
19.18	7.55	15TH	20.28	7.98	
19.54	7.69	20TH	20.64	8.12	
19.85	7.82	25TH	20.95	8.25	
20.13	7.93	30TH	21.22	8.36	
20.38	8.02	35TH	21.48	8.45	
20.62	8.12	40TH	21.71	8.55	
20.86	8.21	45TH	21.94	8.64	
21.08	8.30	50TH	22.17	8.73	
21.31	8.39	55TH	22.39	8.81	
21.55	8.48	60TH	22.61	8.90	
21.79	8.58	65TH	22.84	8.99	
22.04	8.68	70TH	23.09	9.09	
22.31	8.78	75TH	23.35	9.19	
22.62	8.91	80TH	23.64	9.31	
22.98	9.05	85TH	23.99	9.44	
23.43	9.23	90TH	24.43	9.62	
24.11	9.49	95TH	25.12	9.89	
24.56	9.67	97TH	25.59	10.08	
24.89	9.80	98TH	25.97	10.22	
25.41	10.01	99TH	26.60	10.47	

# RISE (OMPHALION)

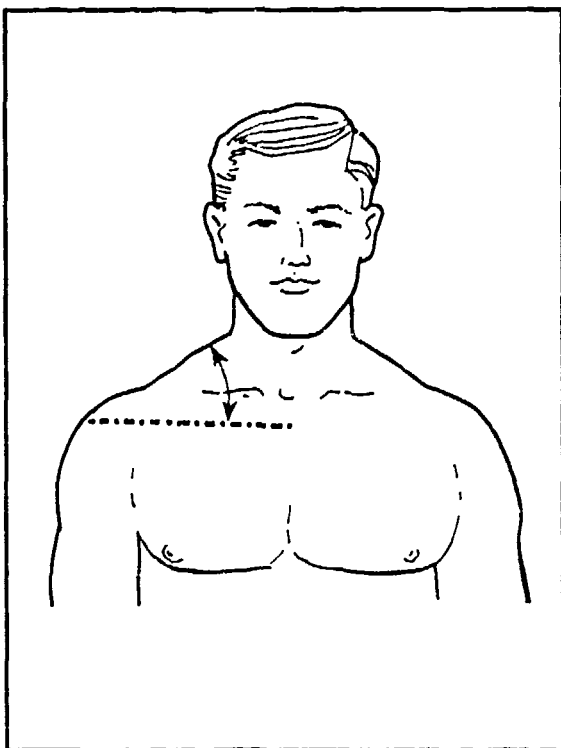
FEMALES			
CM		INCHES	
21.08	MEAN VALUE	8.30	
.04	SE (MEAN)	.02	
1.85	STD DEVIATION	.73	
.03	SE (STD DEV)	.00	
13.70	MINIMUM	5.39	
27.60	MAXIMUM	10.87	
SYMMETRY---VETA I = -.04			
KURTOSIS---VETA II = 3.20			
COEF. OF VARIATION = 8.8%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
22.16	MEAN VALUE	8.72	
.04	SE (MEAN)	.02	
1.81	STD DEVIATION	.71	
.03	SE (STD DEV)	.00	
16.90	MINIMUM	6.65	
29.10	MAXIMUM	11.46	
SYMMETRY---VETA I = .08			
KURTOSIS---VETA II = 3.13			
COEF. OF VARIATION = 8.2%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	13.25 - 13.75							
1	.05	2	.09	13.75 - 14.25							
1	.05	3	.14	14.25 - 14.75							
0	.00	3	.14	14.75 - 15.25							
4	.18	7	.32	15.25 - 15.75							
4	.18	11	.50	15.75 - 16.25							
13	.59	24	1.09	16.25 - 16.75							
27	1.22	51	2.31	16.75 - 17.25		6	.34	6	.34		
31	1.40	82	3.71	17.25 - 17.75		9	.51	15	.85		
56	2.54	138	6.25	17.75 - 18.25		7	.39	22	1.24		
81	3.67	219	9.92	18.25 - 18.75		36	2.03	58	3.27		
127	5.75	346	15.67	18.75 - 19.25		44	2.48	102	5.75		
156	7.07	502	22.74	19.25 - 19.75		55	3.10	157	8.85		
208	9.42	710	32.16	19.75 - 20.25		85	4.79	242	13.64		
229	10.37	939	42.53	20.25 - 20.75		137	7.72	379	21.36		
244	11.05	1183	53.58	20.75 - 21.25		186	10.48	565	31.85		
252	11.41	1435	64.99	21.25 - 21.75		174	9.81	739	41.66		
195	8.83	1630	73.82	21.75 - 22.25		175	9.86	914	51.52		
181	8.20	1811	82.02	22.25 - 22.75		206	11.61	1120	63.13		
131	5.93	1942	87.95	22.75 - 23.25		172	9.70	1292	72.83		
113	5.12	2055	93.07	23.25 - 23.75		136	7.67	1428	80.50		
61	2.76	2116	95.83	23.75 - 24.25		131	7.38	1559	87.88		
37	1.68	2153	97.51	24.25 - 24.75		87	4.90	1646	92.78		
25	1.13	2178	98.64	24.75 - 25.25		52	2.93	1698	95.72		
18	.82	2196	99.46	25.25 - 25.75		36	2.03	1734	97.75		
6	.27	2202	99.73	25.75 - 26.25		14	.79	1748	98.53		
3	.14	2205	99.86	26.25 - 26.75		8	.45	1756	98.98		
2	.09	2207	99.95	26.75 - 27.25		10	.56	1766	99.55		
1	.05	2208	100.00	27.25 - 27.75		3	.17	1769	99.72		
				27.75 - 28.25		3	.17	1772	99.89		
				28.25 - 28.75		0	.00	1772	99.89		
				28.75 - 29.25		2	.11	1774	100.00		

## (D32) SHOULDER SLOPE

The degree of the slope of the right shoulder of a subject standing erect with the arms relaxed at the sides is calculated as follows: Arcsin of the quotient: (NECK HEIGHT, LATERAL minus ACROMIAL HEIGHT) divided by SHOULDER LENGTH.



### THE PERCENTILES

FEMALES		MALES	
DEGREES	RADIANS	DEGREES	RADIANS
16.25	.28	1ST	17.70 .31
17.44	.30	2ND	18.57 .32
18.18	.32	3RD	19.15 .33
19.19	.33	5TH	19.98 .35
20.70	.36	10TH	21.32 .37
21.71	.38	15TH	22.27 .39
22.49	.39	20TH	23.03 .40
23.16	.40	25TH	23.69 .41
23.76	.41	30TH	24.30 .42
24.30	.42	35TH	24.85 .43
24.82	.43	40TH	25.39 .44
25.31	.44	45TH	25.90 .45
25.79	.45	50TH	26.41 .46
26.28	.46	55TH	26.93 .47
26.76	.47	60TH	27.44 .48
27.27	.48	65TH	27.97 .49
27.79	.49	70TH	28.53 .50
28.36	.49	75TH	29.14 .51
28.99	.51	80TH	29.80 .52
29.73	.52	85TH	30.57 .53
30.66	.54	90TH	31.52 .55
32.04	.56	95TH	32.90 .57
32.95	.58	97TH	33.76 .59
33.62	.59	98TH	34.38 .60
34.70	.61	99TH	35.33 .62

# SHOULDER SLOPE

FEMALES			
DEGREES		RADIAN	
25.74	MEAN VALUE	.45	
.08	SE(MEAN)	.00	
3.88	STD DEVIATION	.07	
.06	SE(STD DEV)	.00	
12.00	MINIMUM	.21	
40.00	MAXIMUM	.70	
SYMMETRY---VETA I = -.05			
KURTOSIS---VETA II = 3.04			
COEF. OF VARIATION = 15.1%			
NUMBER OF SUBJECTS = 2208			

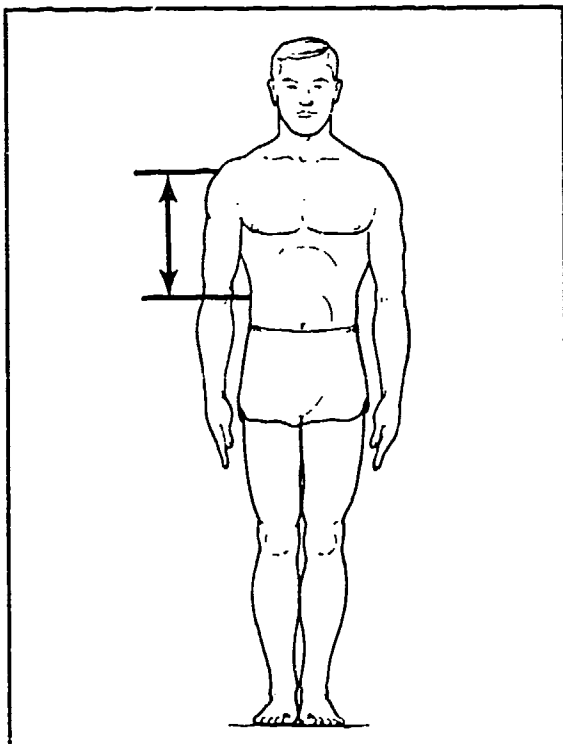
MALES			
DEGREES		RADIAN	
26.42	MEAN VALUE	.46	
.09	SE(MEAN)	.00	
3.96	STD DEVIATION	.07	
.07	SE(STD DEV)	.00	
10.00	MINIMUM	.17	
42.00	MAXIMUM	.73	
SYMMETRY---VETA I = -.02			
KURTOSIS---VETA II = 3.12			
COEF. OF VARIATION = 15.0%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	DEGREES		F	FPct	CumF	CumFPct		
2	.09	2	.09	2.25 -	2.35						
4	.18	6	.27	2.35 -	2.45						
7	.32	13	.59	2.45 -	2.55						
24	1.09	37	1.68	2.55 -	2.65	1	.06	1	.06		
55	2.49	92	4.17	2.65 -	2.75	2	.11	3	.17		
92	4.17	184	8.33	2.75 -	2.85	9	.51	12	.68		
145	6.57	329	14.90	2.85 -	2.95	31	1.75	43	2.42		
176	7.97	505	22.87	2.95 -	3.05	60	3.38	103	5.81		
189	8.56	694	31.43	3.05 -	3.15	91	5.13	194	10.94		
179	8.11	873	39.54	3.15 -	3.25	122	6.88	316	17.81		
175	7.93	1048	47.46	3.25 -	3.35	175	9.86	491	27.68		
121	5.48	1169	52.94	3.35 -	3.45	196	11.05	687	38.73		
142	6.43	1311	59.38	3.45 -	3.55	179	10.09	866	48.82		
127	5.75	1438	65.13	3.55 -	3.65	158	8.91	1024	57.72		
129	5.84	1567	70.97	3.65 -	3.75	139	7.84	1163	65.56		
138	6.25	1705	77.22	3.75 -	3.85	89	5.02	1252	70.57		
112	5.07	1817	82.29	3.85 -	3.95	89	5.02	1341	75.59		
101	4.57	1918	86.87	3.95 -	4.05	73	4.11	1414	79.71		
95	4.30	2013	91.17	4.05 -	4.15	57	3.21	1471	82.92		
69	3.13	2082	94.29	4.15 -	4.25	72	4.06	1543	86.98		
55	2.49	2137	96.78	4.25 -	4.35	55	3.10	1598	90.08		
34	1.54	2171	98.32	4.35 -	4.45	57	3.21	1655	93.29		
23	1.04	2194	99.37	4.45 -	4.55	37	2.09	1692	95.38		
5	.23	2199	99.59	4.55 -	4.65	23	1.30	1715	96.67		
3	.14	2202	99.73	4.65 -	4.75	25	1.41	1740	98.08		
5	.23	2207	99.95	4.75 -	4.85	16	.90	1756	98.99		
0	.00	2207	99.95	4.85 -	4.95	9	.51	1765	99.49		
1	.05	2208	100.00	4.95 -	5.05	3	.17	1768	99.66		
				5.05 -	5.15	4	.23	1772	99.89		
				5.15 -	5.25	1	.06	1773	99.94		
				5.25 -	5.35	1	.06	1774	100.00		



## (D33) SHOULDER-WAIST LENGTH (NATURAL INDENTATION)

The vertical distance between the acromion landmark on the tip of the right shoulder and the level of the waist at its natural indentation of a subject standing erect is calculated as follows: ACROMIAL HEIGHT minus WAIST HEIGHT (NATURAL INDENTATION).



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
22.33	8.79	1ST	26.40	10.40
23.08	9.09	2ND	26.95	10.61
23.51	9.25	3RD	27.32	10.75
24.05	9.47	5TH	27.82	10.95
24.82	9.77	10TH	28.62	11.27
25.33	9.97	15TH	29.17	11.48
25.72	10.13	20TH	29.61	11.66
26.07	10.26	25TH	29.99	11.81
26.39	10.39	30TH	30.33	11.94
26.69	10.51	35TH	30.65	12.07
26.98	10.62	40TH	30.95	12.19
27.27	10.73	45TH	31.24	12.30
27.56	10.85	50TH	31.53	12.41
27.86	10.97	55TH	31.82	12.53
28.17	11.09	60TH	32.11	12.64
28.49	11.22	65TH	32.41	12.76
28.85	11.36	70TH	32.72	12.88
29.24	11.51	75TH	33.07	13.02
29.69	11.69	80TH	33.45	13.17
30.21	11.90	85TH	33.90	13.35
30.89	12.16	90TH	34.46	13.57
31.89	12.55	95TH	35.31	13.90
32.51	12.80	97TH	35.86	14.12
32.95	12.97	98TH	36.28	14.28
33.60	13.23	99TH	36.95	14.55

# SHOULDER-WAIST LENGTH (NATURAL INDENTATION)

## FEMALES

<u>CM</u>		<u>INCHES</u>
27.70	MEAN VALUE	10.91
.05	SE (MEAN)	.02
2.39	STD DEVIATION	.94
.04	SE (STD DEV)	.00
18.00	MINIMUM	7.09
37.00	MAXIMUM	14.57

SYMMETRY---VETA I = .24  
 KURTOSIS---VETA II = 3.25  
 COEF. OF VARIATION = 8.6%  
 NUMBER OF SUBJECTS = 2208

## MALES

<u>CM</u>		<u>INCHES</u>
31.54	MEAN VALUE	12.42
.05	SE (MEAN)	.02
2.26	STD DEVIATION	.89
.04	SE (STD DEV)	.00
24.40	MINIMUM	9.61
38.80	MAXIMUM	15.28

SYMMETRY---VETA I = .05  
 KURTOSIS---VETA II = 2.88  
 COEF. OF VARIATION = 7.2%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

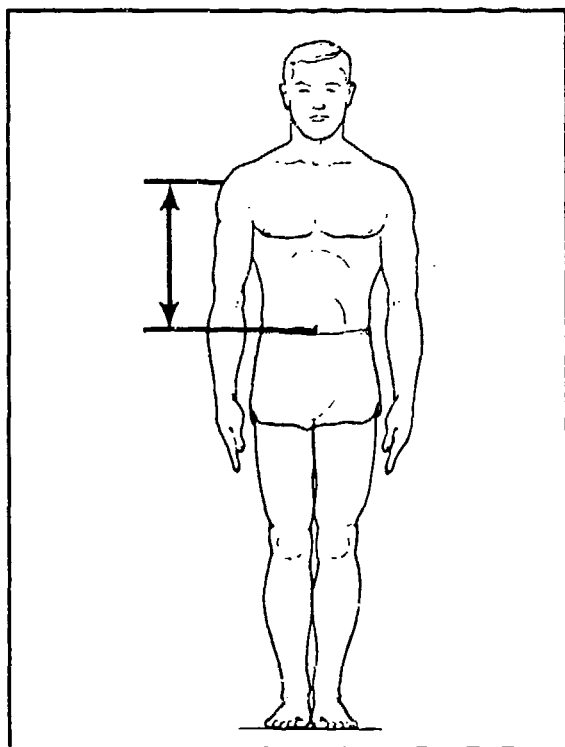
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>
1	.05	1	.05	17.75 - 18.25
0	.00	1	.05	18.25 - 18.75
0	.00	1	.05	18.75 - 19.25
0	.00	1	.05	19.25 - 19.75
0	.00	1	.05	19.75 - 20.25
2	.09	3	.14	20.25 - 20.75
3	.14	6	.27	20.75 - 21.25
3	.14	9	.41	21.25 - 21.75
12	.54	21	.95	21.75 - 22.25
7	.32	28	1.27	22.25 - 22.75
21	.95	49	2.22	22.75 - 23.25
36	1.63	85	3.85	23.25 - 23.75
56	2.54	141	6.39	23.75 - 24.25
63	2.85	204	9.24	24.25 - 24.75
111	5.03	315	14.27	24.75 - 25.25
127	5.75	442	20.02	25.25 - 25.75
158	7.16	600	27.17	25.75 - 26.25
194	8.79	794	35.96	26.25 - 26.75
194	8.79	988	44.75	26.75 - 27.25
201	9.10	1189	53.85	27.25 - 27.75
159	7.20	1348	61.05	27.75 - 28.25
164	7.43	1512	68.48	28.25 - 28.75
145	6.57	1657	75.05	28.75 - 29.25
139	6.30	1796	81.34	29.25 - 29.75
91	4.12	1887	85.46	29.75 - 30.25
91	4.12	1978	89.58	30.25 - 30.75
54	2.45	2032	92.03	30.75 - 31.25
50	2.26	2082	94.29	31.25 - 31.75
39	1.77	2121	96.06	31.75 - 32.25
34	1.54	2155	97.60	32.25 - 32.75
22	1.00	2177	98.60	32.75 - 33.25
14	.63	2191	99.23	33.25 - 33.75
5	.23	2196	99.46	33.75 - 34.25
6	.27	2202	99.73	34.25 - 34.75
0	.00	2202	99.73	34.75 - 35.25
1	.05	2203	99.77	35.25 - 35.75
3	.14	2206	99.91	35.75 - 36.25
1	.05	2207	99.95	36.25 - 36.75
1	.05	2208	100.00	36.75 - 37.25
				37.25 - 37.75
				37.75 - 38.25
				38.25 - 38.75
				38.75 - 39.25

### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
0	.00	1	.06
6	.34	7	.39
5	.28	12	.68
16	.90	28	1.58
30	1.69	58	3.27
22	1.24	80	4.51
60	3.38	140	7.89
52	2.93	192	10.82
74	4.17	266	14.99
102	5.75	368	20.74
152	8.57	520	29.31
147	8.29	667	37.60
153	8.62	820	46.22
134	7.55	954	53.78
154	8.68	1108	62.46
131	7.38	1239	69.84
129	7.27	1368	77.11
104	5.86	1472	82.98
98	5.52	1570	88.50
68	3.83	1638	92.33
40	2.25	1678	94.59
37	2.09	1715	96.67
26	1.47	1741	98.14
11	.62	1752	98.76
10	.56	1762	99.32
5	.28	1767	99.61
4	.23	1771	99.83
2	.11	1773	99.94
1	.06	1774	100.00

## (D34) SHOULDER-WAIST LENGTH (OMPHALION)

The vertical distance between the acromion landmark on the tip of the right shoulder and the level of the waist at the navel (omphalion) of a subject standing erect is calculated as follows: ACROMIAL HEIGHT minus WAIST HEIGHT (OMPHALION).



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
30.15	11.87	1ST	32.65	12.85
30.69	12.08	2ND	33.29	13.11
31.04	12.22	3RD	33.70	13.27
31.53	12.41	5TH	34.27	13.49
32.28	12.71	10TH	35.15	13.84
32.80	12.91	15TH	35.74	14.07
33.21	13.07	20TH	36.22	14.26
33.57	13.22	25TH	36.63	14.42
33.90	13.35	30TH	37.00	14.57
34.21	13.47	35TH	37.34	14.70
34.50	13.58	40TH	37.67	14.83
34.79	13.70	45TH	37.99	14.95
35.07	13.81	50TH	38.30	15.08
35.36	13.92	55TH	38.62	15.20
35.65	14.04	60TH	38.94	15.33
35.96	14.16	65TH	39.28	15.46
36.29	14.29	70TH	39.63	15.60
36.65	14.43	75TH	40.02	15.76
37.05	14.59	80TH	40.47	15.93
37.52	14.77	85TH	40.99	16.14
38.13	15.01	90TH	41.67	16.40
39.06	15.38	95TH	42.72	16.82
39.67	15.62	97TH	43.43	17.10
40.12	15.80	98TH	43.98	17.31
40.85	16.08	99TH	44.88	17.67

# SHOULDER-WAIST LENGTH (OMPHALION)

## FEMALES

<u>CM</u>		<u>INCHES</u>
35.15	MEAN VALUE	13.84
.05	SE(MEAN)	.02
2.28	STD DEVIATION	.90
.03	SE(STD DEV)	.00
27.80	MINIMUM	10.94
44.20	MAXIMUM	17.40

SYMMETRY---VETA I = .20  
 KURTOSIS---VETA II = 3.11  
 COEF. OF VARIATION = 6.5%  
 NUMBER OF SUBJECTS = 2208

## MALES

<u>CM</u>		<u>INCHES</u>
38.37	MEAN VALUE	15.11
.06	SE(MEAN)	.02
2.56	STD DEVIATION	1.01
.04	SE(STD DEV)	.02
30.50	MINIMUM	12.01
48.30	MAXIMUM	19.02

SYMMETRY---VETA I = .19  
 KURTOSIS---VETA II = 3.19  
 COEF. OF VARIATION = 6.7%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
2	.09	2	.09
1	.05	3	.14
3	.14	6	.27
6	.27	12	.54
12	.54	24	1.09
21	.95	45	2.04
44	1.99	89	4.03
54	2.45	143	6.48
66	2.99	209	9.47
110	4.98	319	14.45
132	5.98	451	20.43
129	5.84	580	26.27
206	9.33	786	35.60
203	9.19	989	44.79
188	8.51	1177	53.31
181	8.20	1358	61.50
190	8.61	1548	70.11
150	6.79	1698	76.90
117	5.30	1815	82.20
106	4.80	1921	87.00
81	3.67	2002	90.67
68	3.08	2070	93.75
43	1.95	2113	95.70
33	1.49	2146	97.19
23	1.04	2169	98.23
15	.68	2184	98.91
13	.59	2197	99.50
4	.18	2201	99.68
2	.09	2203	99.77
2	.09	2205	99.86
1	.05	2206	99.91
1	.05	2207	99.95
1	.05	2208	100.00

### CENTIMETERS

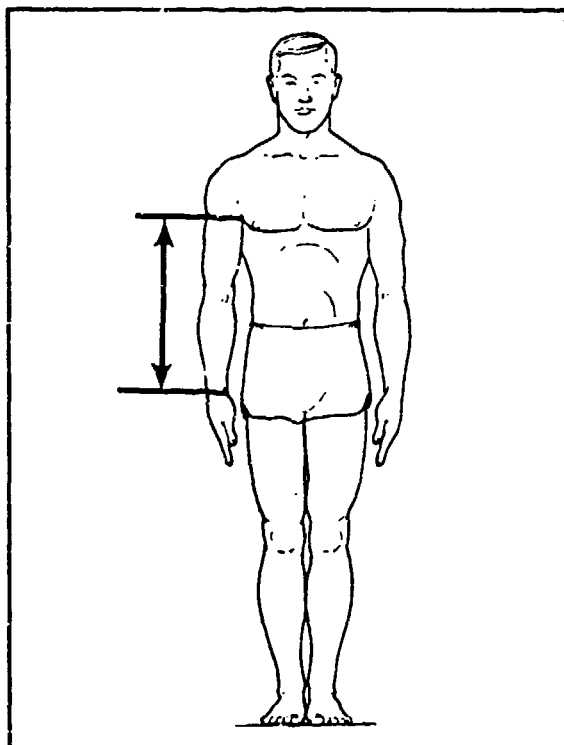
27.75 - 28.25
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29.75 - 30.25
30.25 - 30.75
30.75 - 31.25
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42.75 - 43.25
43.25 - 43.75
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44.25 - 44.75
44.75 - 45.25
45.25 - 45.75
45.75 - 46.25
46.25 - 46.75
46.75 - 47.25
47.25 - 47.75
47.75 - 48.25
48.25 - 48.75

### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
1	.06	2	.11
4	.23	6	.34
6	.34	12	.68
8	.45	20	1.13
14	.79	34	1.92
19	1.07	53	2.99
32	1.80	85	4.79
39	2.20	124	6.99
71	4.00	195	10.99
80	4.51	275	15.50
73	4.11	348	19.62
119	6.71	467	26.32
145	8.17	612	34.50
130	7.33	742	41.83
137	7.72	879	49.55
140	7.89	1019	57.44
106	5.98	1125	63.42
131	7.38	1256	70.80
127	7.16	1383	77.96
87	4.90	1470	82.86
73	4.11	1543	86.98
75	4.23	1618	91.21
45	2.54	1663	93.74
22	1.24	1685	94.98
31	1.75	1716	96.73
18	1.01	1734	97.75
13	.73	1747	98.48
6	.34	1753	98.82
9	.51	1762	99.32
2	.11	1764	99.44
5	.28	1769	99.72
2	.11	1771	99.83
0	.00	1771	99.83
2	.11	1773	99.94
0	.00	1773	99.94
1	.06	1774	100.00

## (D35) SLEEVE INSEAM

The vertical distance between the right anterior-scye-on-the-torso landmark and the stylium landmark on the right wrist of a subject standing erect with the arms straight at the sides is calculated as follows: AXILLA HEIGHT minus WRIST HEIGHT.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
37.79	14.88	1ST	40.94	16.12
38.47	15.15	2ND	41.58	16.37
38.92	15.32	3RD	42.02	16.54
39.54	15.57	5TH	42.64	16.79
40.54	15.96	10TH	43.63	17.18
41.24	16.24	15TH	44.32	17.45
41.80	16.46	20TH	44.88	17.67
42.29	16.65	25TH	45.38	17.86
42.73	16.82	30TH	45.82	18.04
43.14	16.98	35TH	46.23	18.20
43.53	17.14	40TH	46.62	18.36
43.91	17.29	45TH	47.00	18.51
44.28	17.43	50TH	47.38	18.65
44.66	17.58	55TH	47.76	18.80
45.04	17.73	60TH	48.15	18.96
45.44	17.89	65TH	48.55	19.11
45.86	18.05	70TH	48.97	19.28
46.31	18.23	75TH	49.42	19.46
46.82	18.43	80TH	49.94	19.66
47.41	18.66	85TH	50.53	19.89
48.15	18.96	90TH	51.28	20.19
49.25	19.39	95TH	52.40	20.63
49.97	19.67	97TH	53.13	20.92
50.50	19.88	98TH	53.67	21.13
51.34	20.21	99TH	54.53	21.47

# SLEEVE INSEAM

## FEMALES

CM		INCHES
44.33	MEAN VALUE	17.45
.06	SE(MEAN)	.02
2.95	STD DEVIATION	1.16
.04	SE(STD DEV)	.02
32.60	MINIMUM	12.83
55.30	MAXIMUM	21.77

SYMMETRY---VETA I	=	.10
KURTOSIS---VETA II	=	3.03
COEF. OF VARIATION	=	6.7%
NUMBER OF SUBJECTS	=	2208

## MALES

CM		INCHES
47.43	MEAN VALUE	18.67
.07	SE(MEAN)	.03
2.97	STD DEVIATION	1.17
.05	SE(STD DEV)	.02
36.90	MINIMUM	14.53
59.00	MAXIMUM	23.23

SYMMETRY---VETA I	=	.10
KURTOSIS---VETA II	=	3.06
COEF. OF VARIATION	=	6.3%
NUMBER OF SUBJECTS	=	1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
1	.05	1	.05
0	.00	1	.05
0	.00	1	.05
0	.00	1	.05
0	.00	1	.05
0	.00	1	.05
1	.05	2	.09
3	.14	5	.23
2	.09	7	.32
3	.14	10	.45
7	.32	17	.77
21	.95	38	1.72
23	1.04	61	2.76
25	1.13	86	3.89
39	1.77	125	5.66
46	2.08	171	7.74
70	3.17	241	10.91
108	4.89	349	15.81
80	3.62	429	19.43
104	4.71	533	24.14
120	5.43	653	29.57
139	6.30	792	35.87
147	6.66	939	42.53
159	7.20	1098	49.73
148	6.70	1246	56.43
159	7.20	1405	63.63
131	5.93	1536	69.57
119	5.39	1655	74.95
99	4.48	1754	79.44
82	3.71	1836	83.15
80	3.62	1916	86.78
78	3.53	1994	90.31
66	2.99	2060	93.30
35	1.59	2095	94.88
34	1.54	2129	96.42
30	1.36	2159	97.78
13	.59	2172	98.37
12	.54	2184	98.91
9	.41	2193	99.32
4	.18	2197	99.50
5	.23	2202	99.73
1	.05	2203	99.77
2	.09	2205	99.86
1	.05	2206	99.91
1	.05	2207	99.95
0	.00	2207	99.95
1	.05	2208	100.00

### CENTIMETERS

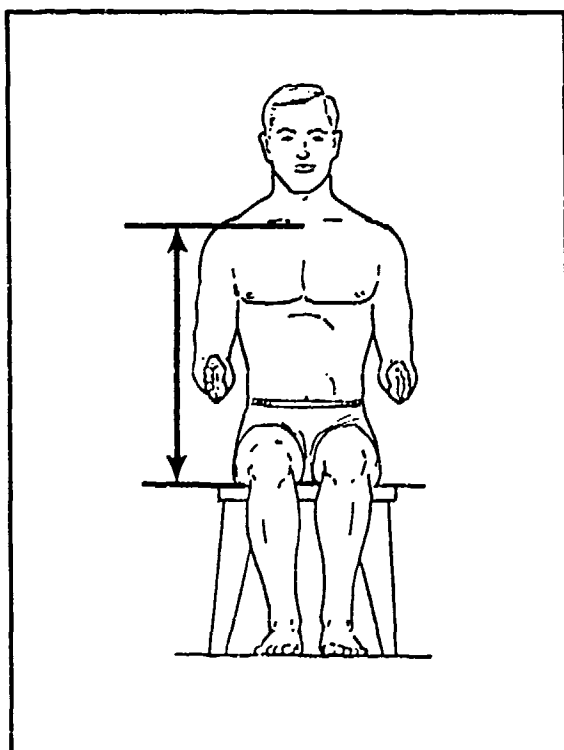
32.25 -	32.75
32.75 -	33.25
33.25 -	33.75
33.75 -	34.25
34.25 -	34.75
34.75 -	35.25
35.25 -	35.75
35.75 -	36.25
36.25 -	36.75
36.75 -	37.25
37.25 -	37.75
37.75 -	38.25
38.25 -	38.75
38.75 -	39.25
39.25 -	39.75
39.75 -	40.25
40.25 -	40.75
40.75 -	41.25
41.25 -	41.75
41.75 -	42.25
42.25 -	42.75
42.75 -	43.25
43.25 -	43.75
43.75 -	44.25
44.25 -	44.75
44.75 -	45.25
45.25 -	45.75
45.75 -	46.25
46.25 -	46.75
46.75 -	47.25
47.25 -	47.75
47.75 -	48.25
48.25 -	48.75
48.75 -	49.25
49.25 -	49.75
49.75 -	50.25
50.25 -	50.75
50.75 -	51.25
51.25 -	51.75
51.75 -	52.25
52.25 -	52.75
52.75 -	53.25
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55.25 -	55.75
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56.25 -	56.75
56.75 -	57.25
57.25 -	57.75
57.75 -	58.25
58.25 -	58.75
58.75 -	59.25

### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
0	.00	1	.06
1	.06	2	.11
1	.06	3	.17
1	.06	4	.23
1	.06	5	.28
4	.23	9	.51
4	.23	13	.73
10	.56	23	1.30
17	.96	40	2.25
32	1.80	72	4.06
30	1.69	102	5.75
36	2.03	138	7.78
51	2.87	189	10.65
72	4.06	261	14.71
66	3.72	327	18.43
86	4.85	413	23.28
104	5.86	517	29.14
100	5.64	617	34.78
100	5.64	717	40.42
120	6.76	837	47.18
127	7.16	964	54.34
128	7.22	1092	61.56
112	6.31	1204	67.87
120	6.76	1324	74.63
94	5.30	1418	79.93
59	3.33	1477	83.26
65	3.66	1542	86.92
53	2.99	1595	89.91
46	2.59	1641	92.50
23	1.30	1664	93.80
27	1.52	1691	95.32
33	1.86	1724	97.18
18	1.01	1742	98.20
11	.62	1753	98.82
9	.51	1762	99.32
5	.28	1767	99.61
2	.11	1769	99.72
2	.11	1771	99.83
0	.00	1771	99.83
1	.06	1772	99.89
0	.00	1772	99.89
1	.06	1773	99.94
0	.00	1773	99.94
1	.06	1774	100.00

## (D36) SUPRASTERNALE HEIGHT, SITTING

The vertical distance between a sitting surface and the suprasternale landmark on the lowest point of the notch at the top of the breastbone of a subject sitting erect is calculated as follows: SUPRASTERNALE HEIGHT minus (STATURE minus SITTING HEIGHT).



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
49.77	19.59	1ST	53.14	20.92
50.26	19.79	2ND	54.01	21.27
50.60	19.92	3RD	54.54	21.47
51.09	20.12	5TH	55.22	21.74
51.93	20.44	10TH	56.22	22.13
52.53	20.68	15TH	56.87	22.39
53.02	20.87	20TH	57.39	22.59
53.45	21.04	25TH	57.83	22.77
53.85	21.20	30TH	58.22	22.92
54.22	21.34	35TH	58.59	23.07
54.57	21.48	40TH	58.94	23.21
54.91	21.62	45TH	59.28	23.34
55.26	21.75	50TH	59.62	23.47
55.60	21.89	55TH	59.97	23.61
55.95	22.03	60TH	60.31	23.75
56.30	22.17	65TH	60.68	23.89
56.68	22.32	70TH	61.06	24.04
57.09	22.48	75TH	61.48	24.21
57.54	22.65	80TH	61.95	24.39
58.05	22.85	85TH	62.50	24.61
58.69	23.11	90TH	63.19	24.88
59.60	23.46	95TH	64.19	25.27
60.17	23.69	97TH	64.81	25.52
60.57	23.85	98TH	65.25	25.69
61.17	24.08	99TH	65.90	25.95

# SUPRASTERNALE HEIGHT, SITTING

FEMALES			
CM		INCHES	
55.29	MEAN VALUE	21.77	
.06	SE (MEAN)	.02	
2.59	STD DEVIATION	1.02	
.04	SE (STD DEV)	.02	
46.50	MINIMUM	18.31	
64.10	MAXIMUM	25.24	
SYMMETRY---VETA I = .06			
KURTOSIS---VETA II = 2.77			
COEF. OF VARIATION = 4.7%			
NUMBER OF SUBJECTS = 2208			

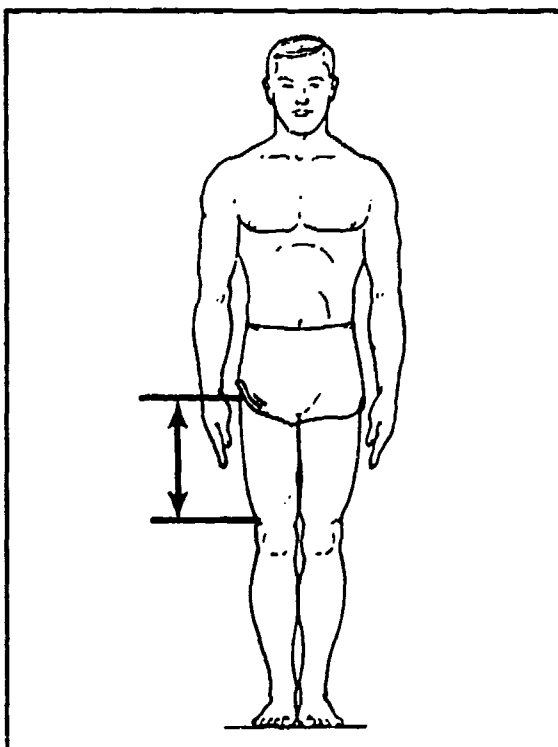
MALES			
CM		INCHES	
59.65	MEAN VALUE	23.48	
.06	SE (MEAN)	.03	
2.71	STD DEVIATION	1.07	
.05	SE (STD DEV)	.02	
50.40	MINIMUM	19.84	
68.40	MAXIMUM	26.93	
SYMMETRY---VETA I = -.02			
KURTOSIS---VETA II = 2.98			
COEF. OF VARIATION = 4.6%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPot	CumF	CumFPot	CENTIMETERS		F	FPot	CumF	CumFPot		
2	.09	2	.09	46.25 -	46.75						
0	.00	2	.09	46.75 -	47.25						
0	.00	2	.09	47.25 -	47.75						
4	.18	6	.27	47.75 -	48.25						
5	.23	11	.50	48.25 -	48.75						
1	.05	12	.54	48.75 -	49.25						
9	.41	21	.95	49.25 -	49.75						
22	1.00	43	1.95	49.75 -	50.25						
38	1.72	81	3.67	50.25 -	50.75	2	.11	2	.11		
46	2.08	127	5.75	50.75 -	51.25	1	.06	3	.17		
57	2.58	184	8.33	51.25 -	51.75	0	.00	3	.17		
81	3.67	265	12.00	51.75 -	52.25	3	.17	6	.34		
100	4.53	365	16.53	52.25 -	52.75	4	.23	10	.56		
119	5.39	484	21.92	52.75 -	53.25	12	.68	22	1.24		
159	7.20	643	29.12	53.25 -	53.75	6	.34	28	1.58		
158	7.16	801	36.28	53.75 -	54.25	11	.62	39	2.20		
159	7.20	960	43.48	54.25 -	54.75	19	1.07	58	3.27		
151	6.84	1111	50.32	54.75 -	55.25	34	1.92	92	5.19		
141	6.39	1252	56.70	55.25 -	55.75	39	2.20	131	7.38		
170	7.70	1422	64.40	55.75 -	56.25	63	3.55	194	10.94		
145	6.57	1567	70.97	56.25 -	56.75	74	4.17	268	15.11		
121	5.48	1688	76.45	56.75 -	57.25	64	3.61	332	18.72		
117	5.30	1805	81.75	57.25 -	57.75	78	4.40	410	23.11		
102	4.62	1907	86.37	57.75 -	58.25	106	5.98	516	29.09		
80	3.62	1987	89.99	58.25 -	58.75	146	8.23	662	37.32		
76	3.44	2063	93.43	58.75 -	59.25	129	7.27	791	44.59		
60	2.72	2123	96.15	59.25 -	59.75	127	7.16	918	51.75		
26	1.18	2149	97.33	59.75 -	60.25	125	7.05	1043	58.79		
29	1.31	2178	98.64	60.25 -	60.75	130	7.33	1173	66.12		
8	.36	2186	99.00	60.75 -	61.25	111	6.26	1284	72.38		
8	.36	2194	99.37	61.25 -	61.75	109	6.14	1393	78.52		
8	.36	2202	99.73	61.75 -	62.25	91	5.13	1484	83.65		
3	.14	2205	99.86	62.25 -	62.75	65	3.66	1549	87.32		
0	.00	2205	99.86	62.75 -	63.25	49	2.76	1598	90.08		
0	.00	2205	99.86	63.25 -	63.75	44	2.48	1642	92.56		
3	.14	2208	100.00	63.75 -	64.25	43	2.42	1685	94.98		
				64.25 -	64.75	30	1.69	1715	96.67		
				64.75 -	65.25	29	1.63	1744	98.31		
				65.25 -	65.75	8	.45	1752	98.76		
				65.75 -	66.25	12	.68	1764	99.44		
				66.25 -	66.75	5	.28	1769	99.72		
				66.75 -	67.25	1	.06	1770	99.77		
				67.25 -	67.75	3	.17	1773	99.94		
				67.75 -	68.25	0	.00	1773	99.94		
				68.25 -	68.75	1	.06	1774	100.00		



## (D37) THIGH LINK

The vertical distance between the trochanterion landmark on the right thigh and the lateral femoral epicondyle landmark on the right side of the knee is calculated as follows: TROCHANTERION HEIGHT minus LATERAL FEMORAL EPICONDYLE HEIGHT.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
34.84	13.72	1ST	36.82	14.50
35.39	13.93	2ND	37.61	14.81
35.76	14.08	3RD	38.07	14.99
36.27	14.28	5TH	38.67	15.23
37.08	14.60	10TH	39.55	15.57
37.64	14.82	15TH	40.12	15.80
38.08	14.99	20TH	40.58	15.97
38.47	15.14	25TH	40.97	16.13
38.81	15.28	30TH	41.33	16.27
39.13	15.41	35TH	41.66	16.40
39.43	15.52	40TH	41.98	16.53
39.72	15.64	45TH	42.29	16.65
40.01	15.75	50TH	42.60	16.77
40.30	15.87	55TH	42.92	16.90
40.60	15.98	60TH	43.24	17.02
40.90	16.10	65TH	43.58	17.16
41.23	16.23	70TH	43.95	17.30
41.58	16.37	75TH	44.34	17.46
41.97	16.53	80TH	44.79	17.63
42.44	16.71	85TH	45.31	17.84
43.04	16.95	90TH	45.96	18.09
43.97	17.31	95TH	46.90	18.47
44.61	17.56	97TH	47.48	18.69
45.10	17.76	98TH	47.88	18.85
45.92	18.08	99TH	48.45	19.07

# THIGH LINK

## FEMALES

CM		INCHES
40.05	MEAN VALUE	15.77
.05	SE(MEAN)	.02
2.35	STD DEVIATION	.92
.04	SE(STD DEV)	.00
31.40	MINIMUM	12.36
50.40	MAXIMUM	19.84

SYMMETRY---VETA I = .18  
 KURTOSIS---VETA II = 3.38  
 COEF. OF VARIATION = 5.9%  
 NUMBER OF SUBJECTS = 2208

## MALES

CM		INCHES
42.67	MEAN VALUE	16.80
.06	SE(MEAN)	.02
2.51	STD DEVIATION	.99
.04	SE(STD DEV)	.02
34.30	MINIMUM	13.50
53.60	MAXIMUM	21.10

SYMMETRY---VETA I = .10  
 KURTOSIS---VETA II = 3.16  
 COEF. OF VARIATION = 5.9%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
1	.05	1	.05
0	.00	1	.05
1	.05	2	.09
1	.05	3	.14
3	.14	6	.27
5	.23	11	.50
7	.32	18	.82
18	.82	36	1.63
32	1.45	68	3.08
41	1.86	109	4.94
53	2.40	162	7.34
86	3.89	248	11.23
116	5.25	364	16.49
119	5.39	483	21.88
139	6.30	622	28.17
186	8.42	808	36.59
196	8.88	1004	45.47
189	8.56	1193	54.03
210	9.51	1403	63.54
157	7.11	1560	70.65
142	6.43	1702	77.08
133	6.02	1835	83.11
115	5.21	1950	88.32
66	2.99	2016	91.30
56	2.54	2072	93.84
47	2.13	2119	95.97
30	1.36	2149	97.33
23	1.04	2172	98.37
11	.50	2183	98.87
9	.41	2192	99.28
3	.14	2195	99.41
3	.14	2198	99.55
5	.23	2203	99.77
2	.09	2205	99.86
1	.05	2206	99.91
1	.05	2207	99.95
0	.00	2207	99.95
0	.00	2207	99.95
1	.05	2208	100.00

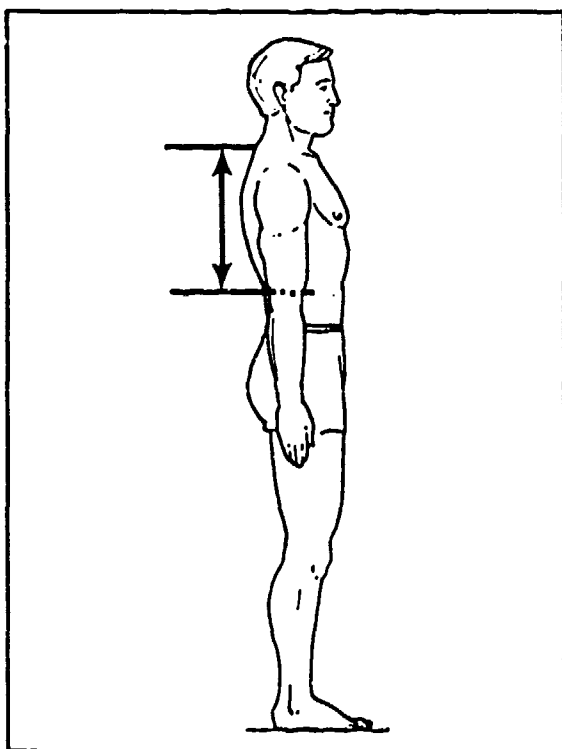
CENTIMETERS
31.25 - 31.75
31.75 - 32.25
32.25 - 32.75
32.75 - 33.25
33.25 - 33.75
33.75 - 34.25
34.25 - 34.75
34.75 - 35.25
35.25 - 35.75
35.75 - 36.25
36.25 - 36.75
36.75 - 37.25
37.25 - 37.75
37.75 - 38.25
38.25 - 38.75
38.75 - 39.25
39.25 - 39.75
39.75 - 40.25
40.25 - 40.75
40.75 - 41.25
41.25 - 41.75
41.75 - 42.25
42.25 - 42.75
42.75 - 43.25
43.25 - 43.75
43.75 - 44.25
44.25 - 44.75
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47.25 - 47.75
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48.25 - 48.75
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51.25 - 51.75
51.75 - 52.25
52.25 - 52.75
52.75 - 53.25
53.25 - 53.75

### MALES

F	FPct	CumF	CumFPct
2	.11	2	.11
1	.06	3	.17
2	.11	5	.28
4	.23	9	.51
7	.39	16	.90
11	.62	27	1.52
13	.73	40	2.25
19	1.07	59	3.33
34	1.92	93	5.24
55	3.10	148	8.34
54	3.04	202	11.39
80	4.51	282	15.90
105	5.92	387	21.82
131	7.38	518	29.20
131	7.38	649	36.58
125	7.05	774	43.63
177	9.98	951	53.61
119	6.71	1070	60.32
105	5.92	1175	66.23
142	8.00	1317	74.24
101	5.69	1418	79.93
78	4.40	1496	84.33
77	4.34	1573	88.67
53	2.99	1626	91.66
42	2.37	1668	94.02
38	2.14	1706	96.17
33	1.86	1739	98.03
13	.73	1752	98.76
8	.45	1760	99.21
4	.23	1764	99.44
4	.23	1768	99.66
1	.06	1769	99.72
4	.23	1773	99.94
0	.00	1773	99.94
0	.00	1773	99.94
0	.00	1773	99.94
0	.00	1773	99.94
1	.06	1774	100.00

## (D38) THORAX LINK

The vertical distance between the cervicale landmark at the base of the back of the neck and the level of the inferior point of the right tenth rib is calculated as follows:  
**CERVICALE HEIGHT minus TENTH RIB HEIGHT.**



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
31.81	12.53	1ST	34.69	13.66	
32.28	12.71	2ND	35.30	13.90	
32.58	12.83	3RD	35.69	14.05	
33.02	13.00	5TH	36.21	14.25	
33.71	13.27	10TH	37.01	14.57	
34.19	13.46	15TH	37.55	14.78	
34.58	13.62	20TH	37.98	14.95	
34.93	13.75	25TH	38.34	15.10	
35.23	13.87	30TH	38.67	15.23	
35.52	13.98	35TH	38.98	15.35	
35.79	14.09	40TH	39.27	15.46	
36.06	14.20	45TH	39.55	15.57	
36.32	14.30	50TH	39.83	15.68	
36.59	14.40	55TH	40.10	15.79	
36.86	14.51	60TH	40.38	15.90	
37.13	14.62	65TH	40.67	16.01	
37.43	14.73	70TH	40.98	16.13	
37.74	14.86	75TH	41.31	16.26	
38.10	15.00	80TH	41.68	16.41	
38.51	15.16	85TH	42.10	16.58	
39.03	15.37	90TH	42.64	16.79	
39.79	15.67	95TH	43.43	17.10	
40.29	15.86	97TH	43.94	17.30	
40.65	16.00	98TH	44.31	17.44	
41.22	16.23	99TH	44.88	17.67	

# THORAX LINK

## FEMALES

<u>CM</u>		<u>INCHES</u>
36.36	MEAN VALUE	14.31
.04	SE (MEAN)	.02
2.06	STD DEVIATION	.81
.03	SE (STD DEV)	.00
29.90	MINIMUM	11.77
44.60	MAXIMUM	17.56

SYMMETRY---VETA I = .10  
 KURTOSIS---VETA II = 2.94  
 COEF. OF VARIATION = 5.7%  
 NUMBER OF SUBJECTS = 2208

## MALES

<u>CM</u>		<u>INCHES</u>
39.82	MEAN VALUE	15.68
.05	SE (MEAN)	.02
2.18	STD DEVIATION	.86
.04	SE (STD DEV)	.00
33.60	MINIMUM	13.23
48.80	MAXIMUM	19.21

SYMMETRY---VETA I = .03  
 KURTOSIS---VETA II = 3.02  
 COEF. OF VARIATION = 5.5%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
1	.05	1	.05
3	.14	4	.18
7	.32	11	.50
7	.32	18	.82
26	1.18	44	1.99
38	1.72	82	3.71
49	2.22	131	5.93
86	3.89	217	9.83
136	6.16	353	15.99
136	6.16	489	22.15
189	8.56	678	30.71
195	8.83	873	39.54
197	8.92	1070	48.46
194	8.79	1264	57.25
217	9.83	1481	67.07
187	8.47	1668	75.54
137	6.20	1805	81.75
135	6.11	1940	87.86
93	4.21	2033	92.07
56	2.54	2089	94.61
51	2.31	2140	96.92
29	1.31	2169	98.23
18	.82	2187	99.05
9	.41	2196	99.46
5	.23	2201	99.68
5	.23	2206	99.91
1	.05	2207	99.95
0	.00	2207	99.95
0	.00	2207	99.95
1	.05	2208	100.00

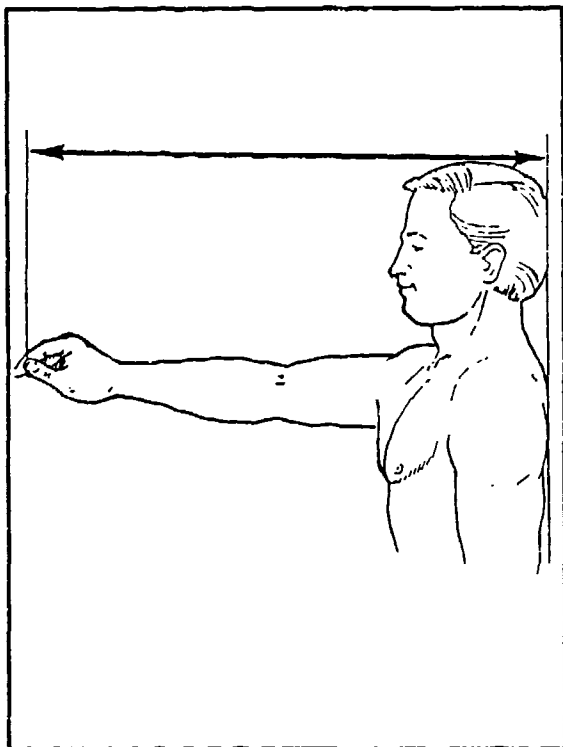
<u>CENTIMETERS</u>
29.75 - 30.25
30.25 - 30.75
30.75 - 31.25
31.25 - 31.75
31.75 - 32.25
32.25 - 32.75
32.75 - 33.25
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37.25 - 37.75
37.75 - 38.25
38.25 - 38.75
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39.75 - 40.25
40.25 - 40.75
40.75 - 41.25
41.25 - 41.75
41.75 - 42.25
42.25 - 42.75
42.75 - 43.25
43.25 - 43.75
43.75 - 44.25
44.25 - 44.75
44.75 - 45.25
45.25 - 45.75
45.75 - 46.25
46.25 - 46.75
46.75 - 47.25
47.25 - 47.75
47.75 - 48.25
48.25 - 48.75
48.75 - 49.25

### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
9	.51	10	.56
7	.39	17	.96
18	1.01	35	1.97
27	1.52	62	3.49
33	1.86	95	5.36
42	2.37	137	7.72
63	3.55	200	11.27
97	5.47	297	16.74
111	6.26	408	23.00
129	7.27	537	30.27
176	9.92	713	40.19
163	9.19	876	49.38
156	8.79	1032	58.17
151	8.51	1183	66.69
128	7.22	1311	73.90
126	7.10	1437	81.00
105	5.92	1542	86.92
66	3.72	1608	90.64
59	3.33	1667	93.97
41	2.31	1708	96.28
30	1.69	1738	97.97
16	.90	1754	98.87
9	.51	1763	99.38
5	.28	1768	99.66
2	.11	1770	99.77
3	.17	1773	99.94
0	.00	1773	99.94
0	.00	1773	99.94
0	.00	1773	99.94
0	.00	1773	99.94
1	.06	1774	100.00

## (D39) THUMB TIP REACH, EXTENDED

The horizontal distance between the vertical plane of the back and the tip of the right thumb of a subject standing erect with the left shoulder against a wall and the right shoulder, arm, and hand extended forward horizontally as far as possible with the thumb lying on the first knuckle of the forefinger is calculated as follows: WRIST-WALL LENGTH, EXTENDED plus WRIST-THUMB TIP LENGTH.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
71.15	28.01	1ST	77.92	30.68	
72.05	28.36	2ND	78.89	31.06	
72.63	28.60	3RD	79.55	31.32	
73.45	29.92	5TH	80.48	31.68	
74.76	29.43	10TH	81.96	32.27	
75.66	29.79	15TH	82.97	32.67	
76.38	30.07	20TH	83.78	32.98	
77.02	30.32	25TH	84.48	33.26	
77.59	30.55	30TH	85.10	33.50	
78.12	30.76	35TH	85.67	33.73	
78.63	30.96	40TH	86.22	33.94	
79.12	31.15	45TH	86.74	34.15	
79.61	31.34	50TH	87.25	34.35	
80.10	31.54	55TH	87.76	34.55	
80.60	31.73	60TH	88.28	34.76	
81.12	31.94	65TH	88.81	34.97	
81.66	32.15	70TH	89.38	35.19	
82.26	32.39	75TH	89.99	35.43	
82.93	32.65	80TH	90.68	35.70	
83.70	32.95	85TH	91.49	36.02	
84.69	33.34	90TH	92.54	36.43	
86.17	33.92	95TH	94.18	37.08	
87.14	34.31	97TH	95.33	37.53	
87.86	34.59	98TH	96.22	37.88	
89.00	35.04	99TH	97.74	38.48	

# THUMB TIP REACH, EXTENDED

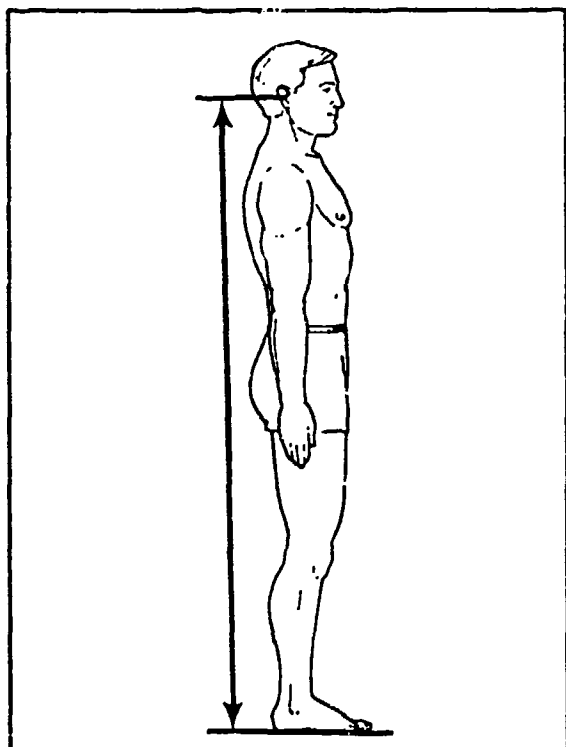
FEMALES			
CM		INCHES	
79.69	MEAN VALUE	31.38	
.08	SE (MEAN)	.03	
3.85	STD DEVIATION	1.52	
.06	SE (STD DEV)	.02	
66.70	MINIMUM	26.26	
97.70	MAXIMUM	38.46	
SYMMETRY---VETA I = .15			
KURTOSIS---VETA II = 3.08			
COEF. OF VARIATION = 4.8%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
87.28	MEAN VALUE	34.36	
.10	SE (MEAN)	.04	
4.16	STD DEVIATION	1.64	
.07	SE (STD DEV)	.03	
73.40	MINIMUM	28.90	
104.60	MAXIMUM	41.18	
SYMMETRY---VETA I = .15			
KURTOSIS---VETA II = 3.24			
COEF. OF VARIATION = 4.8%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
2	.09	2	.09	66.55	- 67.55						
1	.05	3	.14	67.55	- 68.55						
3	.14	6	.27	68.55	- 69.55						
9	.41	15	.68	69.55	- 70.55						
11	.50	26	1.18	70.55	- 71.55						
33	1.49	59	2.67	71.55	- 72.55						
48	2.17	107	4.85	72.55	- 73.55	1	.06	1	.06		
81	3.67	188	8.51	73.55	- 74.55	1	.06	2	.11		
131	5.93	319	14.45	74.55	- 75.55	1	.06	3	.17		
148	6.70	467	21.15	75.55	- 76.55	3	.17	6	.34		
194	8.79	661	29.94	76.55	- 77.55	3	.17	9	.51		
212	9.60	873	39.54	77.55	- 78.55	19	1.07	28	1.58		
218	9.87	1091	49.41	78.55	- 79.55	28	1.58	56	3.16		
206	9.33	1297	58.74	79.55	- 80.55	32	1.80	88	4.96		
224	10.14	1521	68.89	80.55	- 81.55	48	2.71	136	7.67		
182	8.24	1703	77.13	81.55	- 82.55	80	4.51	216	12.18		
163	7.38	1866	84.51	82.55	- 83.55	119	6.71	335	18.88		
105	4.76	1971	89.27	83.55	- 84.55	114	6.43	449	25.31		
87	3.94	2058	93.21	84.55	- 85.55	164	9.24	613	34.55		
62	2.81	2120	96.01	85.55	- 86.55	163	9.19	776	43.74		
37	1.68	2157	97.69	86.55	- 87.55	174	9.81	950	53.55		
17	.77	2174	98.46	87.55	- 88.55	156	8.79	1106	62.34		
19	.86	2193	99.32	88.55	- 89.55	160	9.02	1266	71.36		
11	.50	2204	99.82	89.55	- 90.55	128	7.22	1394	78.58		
0	.00	2204	99.82	90.55	- 91.55	120	6.76	1514	85.34		
2	.09	2206	99.91	91.55	- 92.55	85	4.79	1599	90.14		
1	.05	2207	99.95	92.55	- 93.55	56	3.16	1655	93.29		
0	.00	2207	99.95	93.55	- 94.55	47	2.65	1702	95.94		
0	.00	2207	99.95	94.55	- 95.55	28	1.58	1730	97.52		
0	.00	2207	99.95	95.55	- 96.55	15	.85	1745	98.37		
0	.00	2207	99.95	96.55	- 97.55	10	.56	1755	98.93		
1	.05	2208	100.00	97.55	- 98.55	6	.34	1761	99.27		
				98.55	- 99.55	8	.45	1769	99.72		
				99.55	- 100.55	3	.17	1772	99.89		
				100.55	- 101.55	0	.00	1772	99.89		
				101.55	- 102.55	0	.00	1772	99.89		
				102.55	- 103.55	0	.00	1772	99.89		
				103.55	- 104.55	1	.06	1773	99.94		
				104.55	- 105.55	1	.06	1774	100.00		

## (D40) TRAGION HEIGHT

The vertical distance between a standing surface and the tragon landmark on the cartilaginous flap of flesh in front of the right earhole of a subject standing erect with head in the Frankfort plane is calculated as follows: STATURE minus TRAGION-OF HEAD.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
136.31	53.66	1ST	147.44	58.05	
138.12	54.38	2ND	149.24	58.76	
139.21	54.81	3RD	150.36	59.20	
140.65	55.37	5TH	151.86	59.79	
142.79	56.22	10TH	154.15	60.69	
144.21	56.78	15TH	155.70	61.30	
145.34	57.22	20TH	156.93	61.78	
146.33	57.61	25TH	158.00	62.20	
147.21	57.96	30TH	158.96	62.58	
148.04	58.28	35TH	159.86	62.94	
148.84	58.60	40TH	160.72	63.28	
149.61	58.90	45TH	161.56	63.60	
150.39	59.21	50TH	162.39	63.93	
151.18	59.52	55TH	163.23	64.26	
151.99	59.84	60TH	164.08	64.60	
152.83	60.17	65TH	164.96	64.95	
153.73	60.52	70TH	165.90	65.32	
154.71	60.91	75TH	166.92	65.72	
155.82	61.35	80TH	168.05	66.16	
157.11	61.86	85TH	169.37	66.68	
158.75	62.50	90TH	171.01	67.33	
161.16	63.45	95TH	173.39	68.26	
162.67	64.04	97TH	174.87	68.85	
163.75	64.47	98TH	175.91	69.26	
165.36	65.10	99TH	177.45	69.86	

# TRAGION HEIGHT

## FEMALES

<u>CM</u>		<u>INCHES</u>
150.59	MEAN VALUE	59.29
.13	SE(MEAN)	.05
6.23	STD DEVIATION	2.45
.09	SE(STD DEV)	.04
131.50	MINIMUM	51.77
173.90	MAXIMUM	68.46

SYMMETRY---VETA I = .12  
 KURTOSIS---VETA II = 3.02  
 COEF. OF VARIATION = 4.1%  
 NUMBER OF SUBJECTS = 2208

## MALES

<u>CM</u>		<u>INCHES</u>
162.49	MEAN VALUE	63.97
.16	SE(MEAN)	.06
6.54	STD DEVIATION	2.58
.11	SE(STD DEV)	.04
137.10	MINIMUM	53.98
190.30	MAXIMUM	74.92

SYMMETRY---VETA I = .08  
 KURTOSIS---VETA II = 3.11  
 COEF. OF VARIATION = 4.0%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
3	.14	3	.14
4	.18	7	.32
6	.27	13	.59
13	.59	26	1.18
21	.95	47	2.13
33	1.49	80	3.62
48	2.17	128	5.80
82	3.71	210	9.51
116	5.25	326	14.76
162	7.34	488	22.10
198	8.97	686	31.07
198	8.97	884	40.04
184	8.33	1068	48.37
220	9.96	1288	58.33
197	8.92	1485	67.26
168	7.61	1653	74.86
149	6.75	1802	81.61
127	5.75	1929	87.36
86	3.89	2015	91.26
67	3.03	2082	94.29
54	2.45	2136	96.74
28	1.27	2164	98.01
19	.86	2183	98.87
15	.68	2198	99.55
2	.09	2200	99.64
2	.09	2202	99.73
5	.23	2207	99.95
0	.00	2207	99.95
1	.05	2208	100.00

### CENTIMETERS

130.75 - 132.25  
 132.25 - 133.75  
 133.75 - 135.25  
 135.25 - 136.75  
 136.75 - 138.25  
 138.25 - 139.75  
 139.75 - 141.25  
 141.25 - 142.75  
 142.75 - 144.25  
 144.25 - 145.75  
 145.75 - 147.25  
 147.25 - 148.75  
 148.75 - 150.25  
 150.25 - 151.75  
 151.75 - 153.25  
 153.25 - 154.75  
 154.75 - 156.25  
 156.25 - 157.75  
 157.75 - 159.25  
 159.25 - 160.75  
 160.75 - 162.25  
 162.25 - 163.75  
 163.75 - 165.25  
 165.25 - 166.75  
 166.75 - 168.25  
 168.25 - 169.75  
 169.75 - 171.25  
 171.25 - 172.75  
 172.75 - 174.25  
 174.25 - 175.75  
 175.75 - 177.25  
 177.25 - 178.75  
 178.75 - 180.25  
 180.25 - 181.75  
 181.75 - 183.25  
 183.25 - 184.75  
 184.75 - 186.25  
 186.25 - 187.75  
 187.75 - 189.25  
 189.25 - 190.75

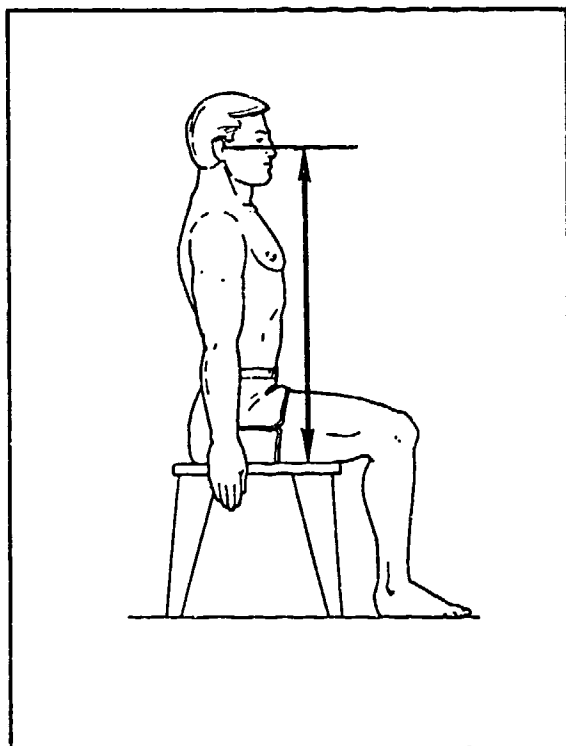
### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
0	.00	1	.06
0	.00	1	.06
1	.06	2	.11
1	.06	3	.17
5	.28	8	.45
8	.45	16	.90
9	.51	25	1.41
25	1.41	50	2.82
31	1.75	81	4.57
51	2.87	132	7.44
84	4.74	216	12.18
74	4.17	290	16.35
130	7.33	420	23.68
145	8.17	565	31.85
155	8.74	720	40.59
151	8.51	871	49.10
176	9.92	1047	59.02
143	8.06	1190	67.08
126	7.10	1316	74.18
115	6.48	1431	80.67
86	4.85	1517	85.51
91	5.13	1608	90.64
61	3.44	1669	94.08
40	2.25	1709	96.34
32	1.80	1741	98.14
13	.73	1754	98.87
9	.51	1763	99.38
3	.17	1766	99.55
5	.28	1771	99.83
1	.06	1772	99.89
0	.00	1772	99.89
0	.00	1772	99.89
1	.06	1773	99.94
1	.06	1774	100.00



## (D41) TRAGION HEIGHT, SITTING

The vertical distance between a sitting surface and the tragon landmark on the cartilaginous flap of flesh in front of the right earhole of a subject sitting erect with the head in the Frankfort plane is calculated as follows: SITTING HEIGHT minus TRAGION-TOP OF HEAD.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
65.48	25.78	1ST	70.14	27.61	
66.27	26.09	2ND	71.17	28.02	
66.78	26.29	3RD	71.81	28.27	
67.48	26.57	5TH	72.66	28.60	
68.59	27.01	10TH	73.93	29.10	
69.37	27.31	15TH	74.77	29.44	
69.99	27.55	20TH	75.43	29.70	
70.54	27.77	25TH	76.01	29.92	
71.03	27.96	30TH	76.52	30.13	
71.49	28.15	35TH	77.00	30.31	
71.93	28.32	40TH	77.45	30.49	
72.36	28.49	45TH	77.89	30.66	
72.79	28.66	50TH	78.32	30.83	
73.22	28.83	55TH	78.75	31.01	
73.66	29.00	60TH	79.19	31.18	
74.11	29.18	65TH	79.65	31.36	
74.59	29.37	70TH	80.13	31.55	
75.11	29.57	75TH	80.64	31.75	
75.69	29.80	80TH	81.22	31.97	
76.36	30.06	85TH	81.87	32.23	
77.19	30.39	90TH	82.68	32.55	
78.41	30.87	95TH	83.83	33.01	
79.17	31.17	97TH	84.53	33.28	
79.71	31.38	98TH	85.02	33.47	
80.52	31.70	99TH	85.71	33.74	

## TRAGION HEIGHT, SITTING

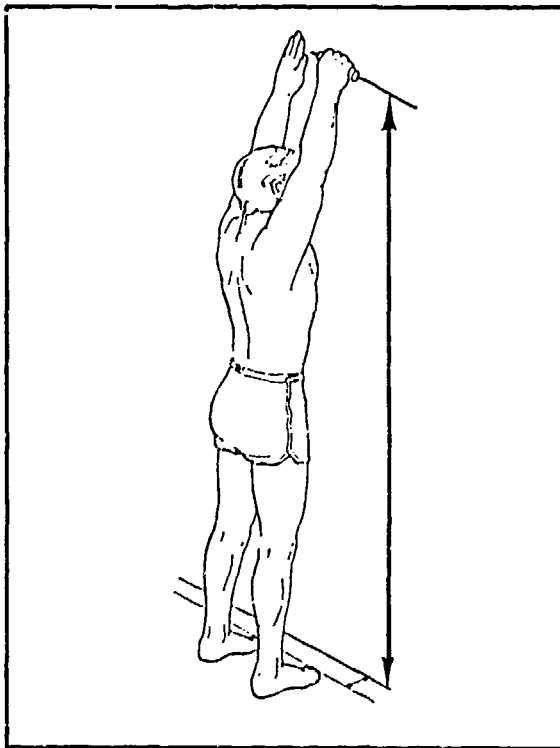
FEMALES		
<u>CM</u>		<u>INCHES</u>
72.85	MEAN VALUE	28.68
.07	SE (MEAN)	.03
3.31	STD DEVIATION	1.30
.05	SE (STD DEV)	.02
63.00	MINIMUM	24.80
84.00	MAXIMUM	33.07
SYMMETRY---VETA I	=	.08
KURTOSIS---VETA II	=	2.81
COEF. OF VARIATION	=	4.6%
NUMBER OF SUBJECTS	=	2208

MALES		
<u>CM</u>		<u>INCHES</u>
78.30	MEAN VALUE	30.83
.08	SE (MEAN)	.03
3.38	STD DEVIATION	1.33
.06	SE (STD DEV)	.02
67.70	MINIMUM	26.65
89.30	MAXIMUM	35.16
SYMMETRY---VETA I	=	-.06
KURTOSIS---VETA II	=	2.89
COEF. OF VARIATION	=	4.3%
NUMBER OF SUBJECTS	=	1774

FEMALES					FREQUENCY TABLE				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS	F	FPct	CumF	CumFPct				
3	.14	3	.14	62.75 - 63.25								
1	.05	4	.18	63.25 - 63.75								
3	.14	7	.32	63.75 - 64.25								
4	.18	11	.50	64.25 - 64.75								
8	.36	19	.86	64.75 - 65.25								
6	.27	25	1.13	65.25 - 65.75								
18	.82	43	1.95	65.75 - 66.25								
29	1.31	72	3.26	66.25 - 66.75								
25	1.13	97	4.39	66.75 - 67.25								
24	1.09	121	5.48	67.25 - 67.75	1	.06	1	.06				
53	2.40	174	7.88	67.75 - 68.25	2	.11	3	.17				
59	2.67	233	10.55	68.25 - 68.75	1	.06	4	.23				
61	2.76	294	13.32	68.75 - 69.25	3	.17	7	.39				
99	4.48	393	17.80	69.25 - 69.75	4	.23	11	.62				
101	4.57	494	22.37	69.75 - 70.25	8	.45	19	1.07				
106	4.80	600	27.17	70.25 - 70.75	9	.51	28	1.58				
127	5.75	727	32.93	70.75 - 71.25	13	.73	41	2.31				
116	5.25	843	38.18	71.25 - 71.75	11	.62	52	2.93				
123	5.57	966	43.75	71.75 - 72.25	12	.68	64	3.61				
131	5.93	1097	49.68	72.25 - 72.75	18	1.01	82	4.62				
135	6.11	1232	55.80	72.75 - 73.25	34	1.92	116	6.54				
113	5.12	1345	60.91	73.25 - 73.75	38	2.14	154	8.68				
126	5.71	1471	66.62	73.75 - 74.25	51	2.87	205	11.56				
104	4.71	1575	71.33	74.25 - 74.75	72	4.06	277	15.61				
94	4.26	1669	75.59	74.75 - 75.25	60	3.38	337	19.00				
96	4.35	1765	79.94	75.25 - 75.75	71	4.00	408	23.00				
103	4.66	1868	84.60	75.75 - 76.25	88	4.96	496	27.96				
71	3.22	1939	87.82	76.25 - 76.75	80	4.51	576	32.47				
60	2.72	1999	90.53	76.75 - 77.25	80	4.51	656	36.98				
40	1.81	2039	92.35	77.25 - 77.75	110	6.20	766	43.18				
45	2.04	2084	94.38	77.75 - 78.25	111	6.26	877	49.44				
37	1.68	2121	96.06	78.25 - 78.75	96	5.41	973	54.85				
24	1.09	2145	97.15	78.75 - 79.25	94	5.30	1067	60.15				
24	1.09	2169	98.23	79.25 - 79.75	102	5.75	1169	65.90				
12	.54	2181	98.78	79.75 - 80.25	96	5.41	1265	71.31				
8	.36	2189	99.14	80.25 - 80.75	82	4.62	1347	75.93				
7	.32	2196	99.46	80.75 - 81.25	81	4.57	1428	80.50				
5	.23	2201	99.68	81.25 - 81.75	57	3.21	1485	83.71				
3	.14	2204	99.82	81.75 - 82.25	72	4.06	1557	87.77				
2	.09	2206	99.91	82.25 - 82.75	53	2.99	1610	90.76				
0	.00	2206	99.91	82.75 - 83.25	42	2.37	1652	93.12				
0	.00	2206	99.91	83.25 - 83.75	31	1.75	1683	94.87				
2	.09	2208	100.00	83.75 - 84.25	24	1.35	1707	96.22				
				84.25 - 84.75	21	1.18	1728	97.41				
				84.75 - 85.25	20	1.13	1748	98.53				
				85.25 - 85.75	9	.51	1757	99.04				
				85.75 - 86.25	5	.28	1762	99.32				
				86.25 - 86.75	5	.28	1767	99.61				
				86.75 - 87.25	2	.11	1769	99.72				
				87.25 - 87.75	1	.06	1770	99.77				
				87.75 - 88.25	0	.00	1770	99.77				
				88.25 - 88.75	2	.11	1772	99.89				
				88.75 - 89.25	1	.06	1773	99.94				
				89.25 - 89.75	1	.06	1774	100.00				

## (D42) VERTICAL GRIP REACH

The vertical distance between a standing surface and the center of a 1-1/4" diameter dowel gripped horizontally in the right hand of a subject standing erect with the shoulder, arm, and hand held straight overhead is calculated as follows: **OVERHEAD FINGERTIP REACH** minus **HAND LENGTH** plus **WRIST-CENTER OF GRIP LENGTH**.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
174.63	68.75	1ST	189.28	74.52	
177.23	69.78	2ND	192.01	75.60	
178.79	70.39	3RD	193.66	76.25	
180.83	71.19	5TH	195.84	77.10	
183.85	72.38	10TH	199.08	78.38	
185.85	73.17	15TH	201.25	79.23	
187.43	73.79	20TH	202.96	79.91	
188.81	74.33	25TH	204.46	80.49	
190.05	74.82	30TH	205.80	81.02	
191.21	75.28	35TH	207.05	81.52	
192.32	75.72	40TH	208.25	81.99	
193.41	76.15	45TH	209.43	82.45	
194.50	76.57	50TH	210.59	82.91	
195.60	77.01	55TH	211.77	83.38	
196.73	77.45	60TH	212.97	83.85	
197.90	77.91	65TH	214.23	84.34	
199.16	78.41	70TH	215.55	84.86	
200.53	78.95	75TH	216.99	85.43	
202.07	79.56	80TH	218.60	86.06	
203.87	80.26	85TH	220.45	86.79	
206.14	81.16	90TH	222.76	87.70	
209.44	82.46	95TH	226.04	88.99	
211.51	83.27	97TH	228.03	89.77	
212.96	83.84	98TH	229.39	90.31	
215.10	84.68	99TH	231.31	91.07	

# VERTICAL GRIP REACH

## FEMALES

CM		INCHES
194.73	MEAN VALUE	76.67
.19	SE(MEAN)	.07
8.71	STD DEVIATION	3.43
.13	SE(STD DEV)	.05
162.20	MINIMUM	63.86
226.00	MAXIMUM	88.98

SYMMETRY---VETA I	=	.07
KURTOSIS---VETA II	=	3.01
COEF. OF VARIATION	=	4.5%
NUMBER OF SUBJECTS	=	2208

## MALES

CM		INCHES
210.74	MEAN VALUE	82.97
.22	SE(MEAN)	.09
9.24	STD DEVIATION	3.64
.16	SE(STD DEV)	.06
169.90	MINIMUM	66.89
253.40	MAXIMUM	99.76

SYMMETRY---VETA I	=	.05
KURTOSIS---VETA II	=	3.28
COEF. OF VARIATION	=	4.4%
NUMBER OF SUBJECTS	=	1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
1	.05	1	.05
1	.05	2	.09
1	.05	3	.14
2	.09	5	.23
2	.09	7	.32
7	.32	14	.63
18	.82	32	1.45
16	.72	48	2.17
27	1.22	75	3.40
46	2.08	121	5.48
88	3.99	209	9.47
108	4.89	317	14.36
141	6.39	458	20.74
161	7.29	619	28.03
194	8.79	813	36.82
208	9.42	1021	46.24
183	8.29	1204	54.53
190	8.61	1394	63.13
174	7.88	1568	71.01
147	6.66	1715	77.67
133	6.02	1848	83.70
123	5.57	1971	89.27
67	3.03	2038	92.30
70	3.17	2108	95.47
37	1.68	2145	97.15
25	1.13	2170	98.28
17	.77	2187	99.05
12	.54	2199	99.59
4	.18	2203	99.77
2	.09	2205	99.86
1	.05	2206	99.91
1	.05	2207	99.95
1	.05	2208	100.00

### CENTIMETERS

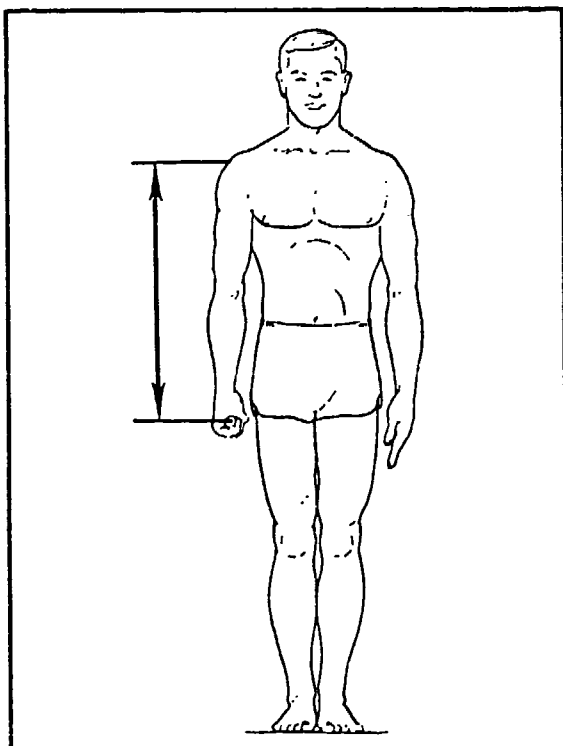
161.55 - 163.55
163.55 - 165.55
165.55 - 167.55
167.55 - 169.55
169.55 - 171.55
171.55 - 173.55
173.55 - 175.55
175.55 - 177.55
177.55 - 179.55
179.55 - 181.55
181.55 - 183.55
183.55 - 185.55
185.55 - 187.55
187.55 - 189.55
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203.55 - 205.55
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207.55 - 209.55
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213.55 - 215.55
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219.55 - 221.55
221.55 - 223.55
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225.55 - 227.55
227.55 - 229.55
229.55 - 231.55
231.55 - 233.55
233.55 - 235.55
235.55 - 237.55
237.55 - 239.55
239.55 - 241.55
241.55 - 243.55
243.55 - 245.55
245.55 - 247.55
247.55 - 249.55
249.55 - 251.55
251.55 - 253.55

### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
0	.00	1	.06
0	.00	1	.06
0	.00	1	.06
0	.00	1	.06
0	.00	1	.06
1	.06	2	.11
2	.11	4	.23
7	.39	11	.62
8	.45	19	1.07
11	.62	30	1.69
20	1.13	50	2.82
29	1.63	79	4.45
64	3.61	143	8.06
48	2.71	191	10.77
81	4.57	272	15.33
112	6.31	384	21.65
145	8.17	529	29.82
117	6.60	646	36.41
143	8.06	789	44.48
178	10.03	967	54.51
146	8.23	1113	62.74
129	7.27	1242	70.01
121	6.82	1363	76.83
99	5.58	1462	82.41
90	5.07	1552	87.49
75	4.23	1627	91.71
53	2.99	1680	94.70
34	1.92	1714	96.62
29	1.63	1743	98.25
16	.90	1759	99.15
4	.23	1763	99.38
5	.28	1768	99.66
3	.17	1771	99.83
0	.00	1771	99.83
1	.06	1772	99.89
0	.00	1772	99.89
0	.00	1772	99.89
0	.00	1772	99.89
0	.00	1772	99.89
1	.06	1773	99.94
1	.06	1774	100.00

## (D43) VERTICAL GRIP REACH DOWN

The vertical distance between the acromion landmark on the tip of the right shoulder and the center of a 1-1/4" diameter dowel gripped perpendicularly in the right hand of a subject standing erect with the arms held straight at the sides is calculated as follows: ACROMIAL HEIGHT minus WRIST HEIGHT plus WRIST-CENTER OF GRIP LENGTH.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
53.55	21.08	1ST	59.08	23.26	
54.42	21.43	2ND	59.95	23.60	
54.97	21.64	3RD	60.50	23.82	
55.71	21.93	5TH	61.23	24.11	
56.84	22.38	10TH	62.36	24.55	
57.61	22.68	15TH	63.13	24.85	
58.21	22.92	20TH	63.74	25.09	
58.74	23.13	25TH	64.28	25.31	
59.21	23.31	30TH	64.76	25.50	
59.65	23.48	35TH	65.21	25.67	
60.07	23.65	40TH	65.65	25.84	
60.48	23.81	45TH	66.07	26.01	
60.88	23.97	50TH	66.49	26.18	
61.29	24.13	55TH	66.92	26.35	
61.70	24.29	60TH	67.35	26.52	
62.14	24.46	65TH	67.81	26.70	
62.60	24.64	70TH	68.29	26.89	
63.10	24.84	75TH	68.81	27.09	
63.66	25.06	80TH	69.40	27.32	
64.32	25.32	85TH	70.09	27.59	
65.16	25.65	90TH	70.96	27.94	
66.42	26.15	95TH	72.23	28.44	
67.25	26.48	97TH	73.04	28.75	
67.86	26.72	98TH	73.61	28.98	
68.82	27.09	99TH	74.49	29.33	

## VERTICAL GRIP REACH DOWN

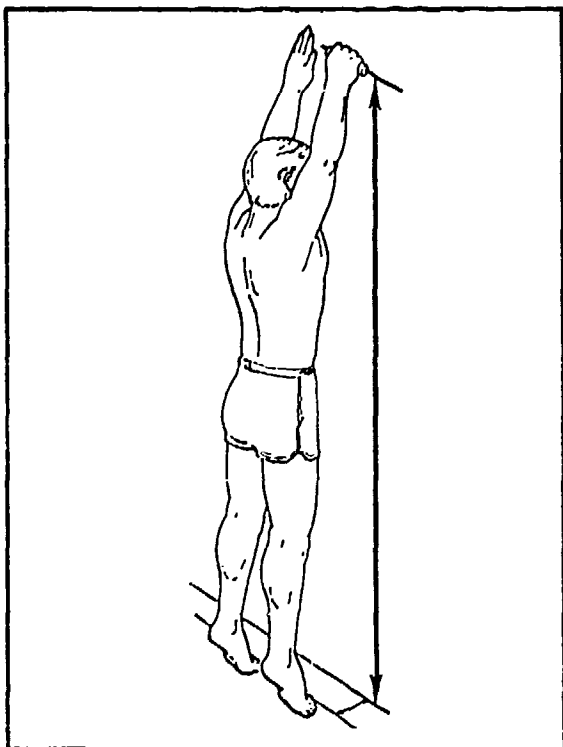
FEMALES		
<u>CM</u>		<u>INCHES</u>
60.95	MEAN VALUE	24.00
.07	SE (MEAN)	.03
3.27	STD DEVIATION	1.29
.05	SE (STD DEV)	.02
49.20	MINIMUM	19.37
73.50	MAXIMUM	28.94
SYMMETRY----	VETA I	= .12
KURTOSIS----	VETA II	= 3.12
COEF. OF VARIATION		= 5.4%
NUMBER OF SUBJECTS		= 2208

MALES		
<u>CM</u>		<u>INCHES</u>
66.57	MEAN VALUE	26.21
.08	SE (MEAN)	.03
3.33	STD DEVIATION	1.31
.06	SE (STD DEV)	.02
54.10	MINIMUM	21.30
81.40	MAXIMUM	32.05
SYMMETRY---VETA I	=	.13
KURTOSIS---VETA II	=	3.17
COEF. OF VARIATION	=	5.0%
NUMBER OF SUBJECTS	=	1774

FREQUENCY TABLE								
FEMALES				MALES				
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>	F	FPct	CumF	CumFPct
1	.05	1	.05	48.55 - 49.55				
0	.00	1	.05	49.55 - 50.55				
2	.09	3	.14	50.55 - 51.55				
6	.27	9	.41	51.55 - 52.55				
17	.77	26	1.18	52.55 - 53.55				
23	1.04	49	2.22	53.55 - 54.55	1	.06	1	.06
47	2.13	96	4.35	54.55 - 55.55	1	.06	2	.11
82	3.71	178	8.06	55.55 - 56.55	1	.06	3	.17
152	6.88	330	14.95	56.55 - 57.55	1	.06	4	.23
177	8.02	507	22.96	57.55 - 58.55	4	.23	8	.45
271	12.27	778	35.24	58.55 - 59.55	16	.90	24	1.35
242	10.96	1020	46.20	59.55 - 60.55	36	2.03	60	3.38
263	11.91	1283	58.11	60.55 - 61.55	46	2.59	106	5.98
236	10.69	1519	68.80	61.55 - 62.55	85	4.79	191	10.77
213	9.65	1732	78.44	62.55 - 63.55	136	7.67	327	18.43
179	8.11	1911	86.55	63.55 - 64.55	164	9.24	491	27.68
120	5.43	2031	91.98	64.55 - 65.55	191	10.77	682	38.44
87	3.94	2118	95.92	65.55 - 66.55	217	12.23	899	50.68
40	1.81	2158	97.74	66.55 - 67.55	208	11.72	1107	62.40
23	1.04	2181	98.78	67.55 - 68.55	195	10.99	1302	73.39
12	.54	2193	99.32	68.55 - 69.55	154	8.68	1456	82.07
8	.36	2201	99.68	69.55 - 70.55	106	5.98	1562	88.05
3	.14	2204	99.82	70.55 - 71.55	77	4.34	1639	92.39
3	.14	2207	99.95	71.55 - 72.55	58	3.27	1697	95.66
1	.05	2208	100.00	72.55 - 73.55	42	2.37	1739	98.03
				73.55 - 74.55	23	1.30	1762	99.32
				74.55 - 75.55	7	.39	1769	99.72
				75.55 - 76.55	3	.17	1772	99.89
				76.55 - 77.55	0	.00	1772	99.89
				77.55 - 78.55	0	.00	1772	99.89
				78.55 - 79.55	1	.06	1773	99.94
				79.55 - 80.55	0	.00	1773	99.94
				80.55 - 81.55	1	.06	1774	100.00

## (D44) VERTICAL GRIP REACH, EXTENDED

The vertical distance between a standing surface and the center of a 1-1/4" diameter dowel gripped horizontally in the right hand of a subject standing on the toes and reaching straight overhead as far as possible is calculated as follows: **OVERHEAD FINGERTIP REACH, EXTENDED** minus **HAND LENGTH** plus **WRIST-CENTER OF GRIP LENGTH**.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
183.10	72.09	1ST	198.56	78.17
185.83	73.16	2ND	201.29	79.25
187.46	73.80	3RD	202.94	79.90
189.59	74.64	5TH	205.13	80.76
192.73	75.88	10TH	208.40	82.05
194.80	76.69	15TH	210.60	82.91
196.43	77.34	20TH	212.34	83.60
197.85	77.89	25TH	213.86	84.20
199.13	78.40	30TH	215.24	84.74
200.32	78.87	35TH	216.52	85.24
201.46	79.32	40TH	217.75	85.73
202.58	79.76	45TH	218.96	86.20
203.70	80.20	50TH	220.16	86.68
204.83	80.64	55TH	221.38	87.16
205.98	81.09	60TH	222.62	87.65
207.19	81.57	65TH	223.91	88.16
208.47	82.08	70TH	225.29	88.70
209.88	82.63	75TH	226.78	89.28
211.47	83.25	80TH	228.46	89.94
213.31	83.98	85TH	230.39	90.70
215.65	84.90	90TH	232.80	91.65
219.05	86.24	95TH	236.25	93.01
221.19	87.08	97TH	238.35	93.84
222.70	87.68	98TH	239.80	94.41
224.93	88.55	99TH	241.86	95.22

# VERTICAL GRIP REACH, EXTENDED

FEMALES			
CM		INCHES	
203.92	MEAN VALUE	80.28	
.19	SE (MEAN)	.08	
8.97	STD DEVIATION	3.53	
.13	SE (STD DEV)	.05	
172.10	MINIMUM	67.76	
235.50	MAXIMUM	92.72	
SYMMETRY---VETA I = .07			
KURTOSIS---VETA II = 3.01			
COEF. OF VARIATION = 4.4%			
NUMBER OF SUBJECTS = 2208			

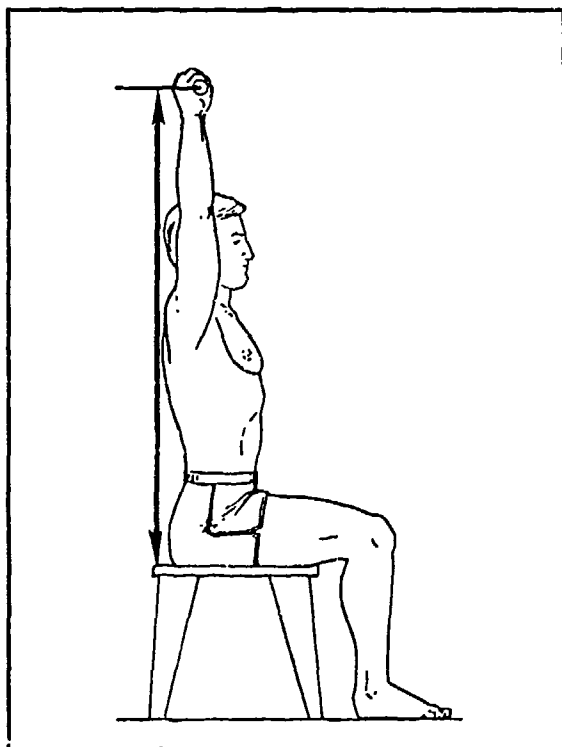
MALES			
CM		INCHES	
220.40	MEAN VALUE	86.77	
.22	SE (MEAN)	.09	
9.47	STD DEVIATION	3.73	
.16	SE (STD DEV)	.06	
181.70	MINIMUM	71.54	
266.90	MAXIMUM	105.08	
SYMMETRY---VETA I = .09			
KURTOSIS---VETA II = 3.23			
COEF. OF VARIATION = 4.3%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE									
FEMALES					MALES				
F	FPct	CumF	CumFPct	CENTIMETERS	F	FPct	CumF	CumFPct	
2	.09	2	.09	171.55 - 173.55					
1	.05	3	.14	173.55 - 175.55					
2	.09	5	.23	175.55 - 177.55					
0	.00	5	.23	177.55 - 179.55					
10	.45	15	.68	179.55 - 181.55					
11	.50	26	1.18	181.55 - 183.55	1	.06	1	.06	
13	.59	39	1.77	183.55 - 185.55	0	.00	1	.06	
21	.95	60	2.72	185.55 - 187.55	0	.00	1	.06	
43	1.95	103	4.66	187.55 - 189.55	0	.00	1	.06	
72	3.26	175	7.93	189.55 - 191.55	1	.06	2	.11	
96	4.35	271	12.27	191.55 - 193.55	1	.06	3	.17	
101	4.57	372	16.85	193.55 - 195.55	4	.23	7	.39	
166	7.52	538	24.37	195.55 - 197.55	4	.23	11	.62	
173	7.84	711	32.20	197.55 - 199.55	12	.68	23	1.30	
189	8.56	900	40.76	199.55 - 201.55	13	.73	36	2.03	
208	9.42	1108	50.18	201.55 - 203.55	23	1.30	59	3.33	
165	7.47	1273	57.65	203.55 - 205.55	40	2.25	99	5.58	
184	8.33	1457	65.99	205.55 - 207.55	50	2.82	149	8.40	
158	7.16	1615	73.14	207.55 - 209.55	63	3.55	212	11.95	
156	7.07	1771	80.21	209.55 - 211.55	86	4.85	298	16.80	
120	5.43	1891	85.64	211.55 - 213.55	125	7.05	423	23.84	
91	4.12	1982	89.76	213.55 - 215.55	136	7.67	559	31.51	
71	3.22	2053	92.98	215.55 - 217.55	131	7.38	690	38.90	
67	3.03	2120	96.01	217.55 - 219.55	154	8.68	844	47.58	
35	1.59	2155	97.60	219.55 - 221.55	145	8.17	989	55.75	
17	.77	2172	98.37	221.55 - 223.55	150	8.46	1139	64.21	
17	.77	2189	99.14	223.55 - 225.55	116	6.54	1255	70.74	
7	.32	2196	99.46	225.55 - 227.55	120	6.76	1375	77.51	
6	.27	2202	99.73	227.55 - 229.55	97	5.47	1472	82.98	
4	.18	2206	99.91	229.55 - 231.55	81	4.57	1553	87.54	
0	.00	2206	99.91	231.55 - 233.55	66	3.72	1619	91.26	
2	.09	2208	100.00	233.55 - 235.55	53	2.99	1672	94.25	
				235.55 - 237.55	33	1.86	1705	96.11	
				237.55 - 239.55	38	2.14	1743	98.25	
				239.55 - 241.55	9	.51	1752	98.76	
				241.55 - 243.55	11	.62	1763	99.38	
				243.55 - 245.55	7	.39	1770	99.77	
				245.55 - 247.55	1	.06	1771	99.83	
				247.55 - 249.55	0	.00	1771	99.83	
				249.55 - 251.55	1	.06	1772	99.89	
				251.55 - 253.55	0	.00	1772	99.89	
				253.55 - 255.55	0	.00	1772	99.89	
				255.55 - 257.55	1	.06	1773	99.94	
				257.55 - 259.55	0	.00	1773	99.94	
				259.55 - 261.55	0	.00	1773	99.94	
				261.55 - 263.55	0	.00	1773	99.94	
				263.55 - 265.55	0	.00	1773	99.94	
				265.55 - 267.55	1	.06	1774	100.00	



# (D45) VERTICAL GRIP REACH, SITTING

The vertical distance between a sitting surface and the center of a 1-1/4" diameter dowel gripped horizontally in the right hand of a subject sitting erect with the arm held straight overhead is calculated as follows: OVERHEAD FINGERTIP REACH, SITTING minus HAND LENGTH plus WRIST-CENTER OF GRIP LENGTH.



## THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
109.24	43.01	1ST	117.75	46.36
110.60	43.54	2ND	119.64	47.10
111.48	43.89	3RD	120.74	47.53
112.69	44.36	5TH	122.14	48.09
114.57	45.11	10TH	124.15	48.88
115.86	45.61	15TH	125.45	49.39
116.87	46.01	20TH	126.46	49.79
117.76	46.36	25TH	127.34	50.13
118.54	46.67	30TH	128.12	50.44
119.27	46.96	35TH	128.84	50.73
119.96	47.23	40TH	129.54	51.00
120.62	47.49	45TH	130.22	51.27
121.28	47.75	50TH	130.90	51.54
121.93	48.01	55TH	131.59	51.81
122.59	48.27	60TH	132.29	52.08
123.27	48.53	65TH	133.02	52.37
123.99	48.81	70TH	133.80	52.68
124.75	49.12	75TH	134.64	53.01
125.61	49.45	80TH	135.60	53.38
126.59	49.84	85TH	136.70	53.82
127.82	50.32	90TH	138.08	54.36
129.61	51.03	95TH	140.05	55.14
130.76	51.48	97TH	141.25	55.61
131.60	51.81	98TH	142.06	55.93
132.90	52.32	99TH	143.20	56.38

# VERTICAL GRIP REACH, SITTING

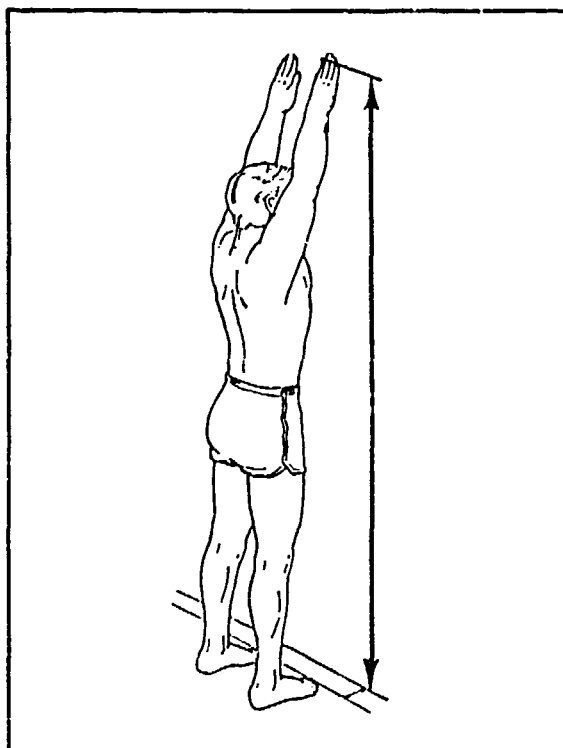
FEMALES			
CM		INCHES	
121.23	MEAN VALUE	47.73	
.11	SE(MEAN)	.04	
5.13	STD DEVIATION	2.02	
.08	SE(STD DEV)	.03	
103.00	MINIMUM	40.55	
138.60	MAXIMUM	54.57	
SYMMETRY---VETA I = -.03			
KURTOSIS---VETA II = 2.94			
COEF. OF VARIATION = 4.2%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
130.98	MEAN VALUE	51.57	
.13	SE(MEAN)	.05	
5.45	STD DEVIATION	2.15	
.09	SE(STD DEV)	.04	
106.40	MINIMUM	41.89	
155.10	MAXIMUM	61.06	
SYMMETRY---VETA I = -.02			
KURTOSIS---VETA II = 3.23			
COEF. OF VARIATION = 4.2%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
P	FPct	CumF	CumFPct	CENTIMETERS		P	FPct	CumF	CumFPct		
1	.05	1	.05	102.55 - 103.55		1	.06	1	.06		
0	.00	1	.05	103.55 - 104.55		0	.00	1	.06		
2	.09	3	.14	104.55 - 105.55		0	.00	1	.06		
3	.14	6	.27	105.55 - 106.55		0	.00	1	.06		
1	.05	7	.32	106.55 - 107.55		0	.00	1	.06		
9	.41	16	.72	107.55 - 108.55		0	.00	1	.06		
8	.36	24	1.09	108.55 - 109.55		0	.00	1	.06		
19	.86	43	1.95	109.55 - 110.55		0	.00	1	.06		
26	1.18	69	3.13	110.55 - 111.55		0	.00	1	.06		
35	1.59	104	4.71	111.55 - 112.55		0	.00	1	.06		
41	1.86	145	6.57	112.55 - 113.55		1	.06	2	.11		
62	2.81	207	9.38	113.55 - 114.55		2	.11	4	.23		
81	3.67	288	13.04	114.55 - 115.55		2	.11	6	.34		
108	4.89	396	17.93	115.55 - 116.55		2	.11	8	.45		
134	6.07	530	24.00	116.55 - 117.55		9	.51	17	.96		
138	6.25	668	30.25	117.55 - 118.55		6	.34	23	1.30		
175	7.93	843	38.18	118.55 - 119.55		5	.28	28	1.58		
153	6.93	996	45.11	119.55 - 120.55		16	.90	44	2.48		
158	7.16	1154	52.26	120.55 - 121.55		25	1.41	69	3.89		
163	7.38	1317	59.65	121.55 - 122.55		37	2.09	106	5.98		
161	7.29	1478	66.94	122.55 - 123.55		42	2.37	148	8.34		
139	6.30	1617	73.23	123.55 - 124.55		52	2.93	200	11.27		
141	6.39	1758	79.62	124.55 - 125.55		67	3.78	267	15.05		
126	5.71	1884	85.33	125.55 - 126.55		101	5.69	368	20.74		
83	3.76	1967	89.09	126.55 - 127.55		96	5.41	464	26.16		
77	3.49	2044	92.57	127.55 - 128.55		131	7.38	595	33.54		
52	2.36	2096	94.93	128.55 - 129.55		125	7.05	720	40.59		
42	1.90	2138	96.83	129.55 - 130.55		107	6.03	827	46.62		
23	1.04	2161	97.87	130.55 - 131.55		129	7.27	956	53.89		
21	.95	2182	98.82	131.55 - 132.55		140	7.89	1096	61.78		
7	.32	2189	99.14	132.55 - 133.55		126	7.10	1222	68.88		
10	.45	2199	99.59	133.55 - 134.55		106	5.98	1328	74.86		
5	.23	2204	99.82	134.55 - 135.55		91	5.13	1419	79.99		
2	.09	2206	99.91	135.55 - 136.55		78	4.40	1497	84.39		
1	.05	2207	99.95	136.55 - 137.55		61	3.44	1558	87.82		
0	.00	2207	99.95	137.55 - 138.55		62	3.49	1620	91.32		
1	.05	2208	100.00	138.55 - 139.55		50	2.82	1670	94.14		
				139.55 - 140.55		31	1.75	1701	95.89		
				140.55 - 141.55		26	1.47	1727	97.35		
				141.55 - 142.55		23	1.30	1750	98.65		
				142.55 - 143.55		9	.51	1759	99.15		
				143.55 - 144.55		7	.39	1766	99.55		
				144.55 - 145.55		5	.28	1771	99.83		
				145.55 - 146.55		0	.00	1771	99.83		
				146.55 - 147.55		2	.11	1773	99.94		
				147.55 - 148.55		0	.00	1773	99.94		
				148.55 - 149.55		0	.00	1773	99.94		
				149.55 - 150.55		0	.00	1773	99.94		
				150.55 - 151.55		0	.00	1773	99.94		
				151.55 - 152.55		0	.00	1773	99.94		
				152.55 - 153.55		0	.00	1773	99.94		
				153.55 - 154.55		0	.00	1773	99.94		
				154.55 - 155.55		1	.06	1774	100.00		

## (D46) VERTICAL INDEX FINGERTIP REACH

The vertical distance between a standing surface and the tip of the right index finger of a subject standing erect with the right shoulder, arm, and fingers stretched straight overhead is calculated as follows: OVERHEAD FINGERTIP REACH minus HAND LENGTH plus WRIST-INDEX FINGER LENGTH.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
183.76	72.35	1ST	199.37	78.49
186.51	73.43	2ND	202.21	79.61
188.17	74.08	3RD	203.93	80.29
190.33	74.93	5TH	206.19	81.18
193.53	76.19	10TH	209.58	82.51
195.66	77.03	15TH	211.84	83.40
197.33	77.69	20TH	213.64	84.11
198.79	78.26	25TH	215.21	84.73
200.10	78.78	30TH	216.62	85.29
201.33	79.26	35TH	217.95	85.81
202.50	79.73	40TH	219.22	86.31
203.65	80.18	45TH	220.45	86.79
204.80	80.63	50TH	221.69	87.28
205.96	81.09	55TH	222.94	87.77
207.15	81.55	60TH	224.22	88.27
208.39	82.04	65TH	225.54	88.80
209.71	82.56	70TH	226.95	89.35
211.15	83.13	75TH	228.47	89.95
212.78	83.77	80TH	230.18	90.62
214.67	84.51	85TH	232.13	91.39
217.06	85.46	90TH	234.56	92.35
220.53	86.82	95TH	237.98	93.69
222.71	87.68	97TH	240.02	94.50
224.24	88.28	98TH	241.40	95.04
226.50	89.17	99TH	243.30	95.79

# VERTICAL INDEX FINGERTIP REACH

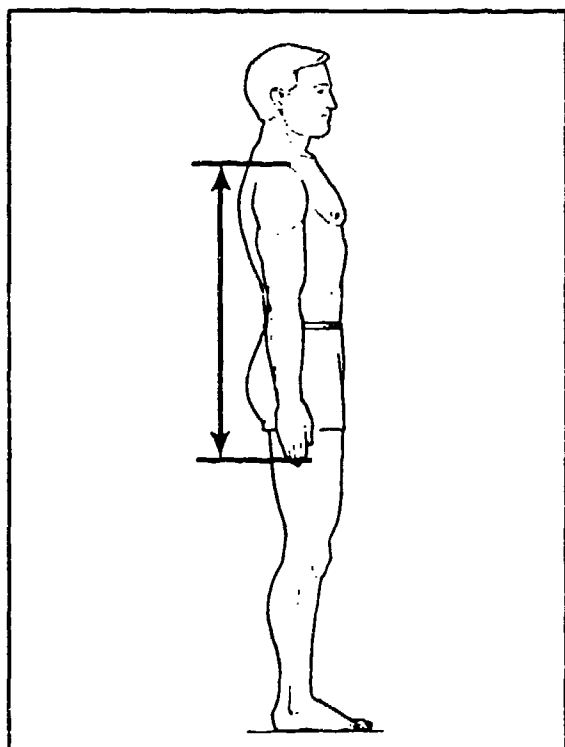
FEMALES			
CM		INCHES	
205.02	MEAN VALUE	80.72	
.20	SE(MEAN)	.08	
9.20	STD DEVIATION	3.62	
.14	SE(STD DEV)	.05	
170.90	MINIMUM	67.28	
237.40	MAXIMUM	93.46	
SYMMETRY---VETA I = .06			
KURTOSIS---VETA II = 3.01			
COEF. OF VARIATION = 4.5%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
221.85	MEAN VALUE	87.34	
.23	SE(MEAN)	.09	
9.71	STD DEVIATION	3.82	
.16	SE(STD DEV)	.06	
178.90	MINIMUM	70.43	
266.40	MAXIMUM	104.88	
SYMMETRY---VETA I = .05			
KURTOSIS---VETA II = 3.29			
COEF. OF VARIATION = 4.4%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	169.55 - 171.55							
1	.05	2	.09	171.55 - 173.55							
1	.05	3	.14	173.55 - 175.55							
1	.05	4	.18	175.55 - 177.55							
1	.05	5	.23	177.55 - 179.55		1	.06	1	.06		
8	.36	13	.59	179.55 - 181.55		0	.00	1	.06		
7	.32	20	.91	181.55 - 183.55		0	.00	1	.06		
16	.72	36	1.63	183.55 - 185.55		0	.00	1	.06		
17	.77	53	2.40	185.55 - 187.55		0	.00	1	.06		
32	1.45	85	3.85	187.55 - 189.55		0	.00	1	.06		
55	2.44	140	6.34	189.55 - 191.55		1	.06	2	.11		
85	3.85	225	10.19	191.55 - 193.55		0	.00	2	.11		
106	4.80	331	14.99	193.55 - 195.55		2	.11	4	.23		
133	6.02	464	21.01	195.55 - 197.55		8	.45	12	.68		
152	6.88	616	27.90	197.55 - 199.55		6	.34	18	1.01		
188	8.51	804	36.41	199.55 - 201.55		10	.56	28	1.58		
196	8.88	1000	45.29	201.55 - 203.55		21	1.18	49	2.76		
177	8.02	1177	53.31	203.55 - 205.55		28	1.58	77	4.34		
164	7.43	1341	60.73	205.55 - 207.55		49	2.76	126	7.10		
186	8.42	1527	69.16	207.55 - 209.55		50	2.82	176	9.92		
131	5.93	1658	75.09	209.55 - 211.55		66	3.72	242	13.64		
145	6.57	1803	81.66	211.55 - 213.55		106	5.98	348	19.62		
129	5.84	1932	87.50	213.55 - 215.55		126	7.10	474	26.72		
76	3.44	2008	90.94	215.55 - 217.55		121	6.82	595	33.54		
71	3.22	2079	94.16	217.55 - 219.55		123	6.93	718	40.47		
50	2.26	2129	96.42	219.55 - 221.55		160	9.02	878	49.49		
28	1.27	2157	97.69	221.55 - 223.55		153	8.62	1031	58.12		
17	.77	2174	98.46	223.55 - 225.55		119	6.71	1150	64.83		
19	.86	2193	99.32	225.55 - 227.55		133	7.50	1283	72.32		
7	.32	2200	99.64	227.55 - 229.55		107	6.03	1390	78.35		
4	.18	2204	99.82	229.55 - 231.55		88	4.96	1478	83.31		
1	.05	2205	99.86	231.55 - 233.55		86	4.85	1564	88.16		
1	.05	2206	99.91	233.55 - 235.55		70	3.95	1634	92.11		
2	.09	2208	100.00	235.55 - 237.55		48	2.71	1682	94.81		
				237.55 - 239.55		28	1.58	1710	96.39		
				239.55 - 241.55		34	1.92	1744	98.31		
				241.55 - 243.55		15	.85	1759	99.15		
				243.55 - 245.55		4	.23	1763	99.38		
				245.55 - 247.55		4	.23	1767	99.61		
				247.55 - 249.55		4	.23	1771	99.83		
				249.55 - 251.55		0	.00	1771	99.83		
				251.55 - 253.55		1	.05	1772	99.89		
				253.55 - 255.55		0	.00	1772	99.89		
				255.55 - 257.55		0	.00	1772	99.89		
				257.55 - 259.55		0	.00	1772	99.89		
				259.55 - 261.55		0	.00	1772	99.89		
				261.55 - 263.55		0	.00	1772	99.89		
				263.55 - 265.55		1	.06	1773	99.94		
				265.55 - 267.55		1	.06	1774	100.00		

## (D47) VERTICAL INDEX FINGERTIP REACH DOWN

The vertical distance between the acromion landmark on the tip of the right shoulder and the tip of the right index finger of a subject standing erect with the arms, hands, and fingers held straight down at the sides is calculated as follows: ACROMIAL HEIGHT minus WRIST HEIGHT plus WRIST-INDEX FINGER LENGTH.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
62.72	24.69	1ST	69.25	27.26	
63.70	25.08	2ND	70.25	27.66	
64.32	25.32	3RD	70.86	27.90	
65.16	25.65	5TH	71.68	28.22	
66.47	26.17	10TH	72.92	28.71	
67.36	26.52	15TH	73.77	29.04	
68.06	26.80	20TH	74.45	29.31	
68.68	27.04	25TH	75.04	29.55	
69.23	27.26	30TH	75.59	29.76	
69.75	27.46	35TH	76.10	29.96	
70.24	27.65	40TH	76.59	30.15	
70.71	27.84	45TH	77.07	30.34	
71.18	28.03	50TH	77.56	30.53	
71.66	28.21	55TH	78.05	30.73	
72.14	28.40	60TH	78.55	30.92	
72.65	28.60	65TH	79.07	31.13	
73.18	28.81	70TH	79.63	31.35	
73.76	29.04	75TH	80.24	31.59	
74.41	29.30	80TH	80.93	31.86	
75.17	29.59	85TH	81.72	32.17	
76.13	29.97	90TH	82.72	32.57	
77.57	30.54	95TH	84.15	33.13	
78.51	30.91	97TH	85.03	33.48	
79.20	31.18	98TH	85.65	33.72	
80.28	31.61	99TH	86.53	34.07	

# VERTICAL INDEX FINGERTIP REACH DOWN

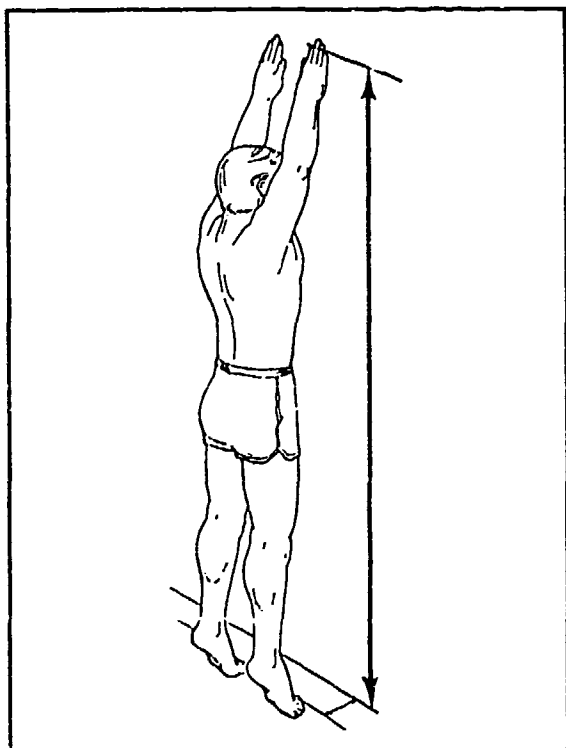
FEMALES			
CM		INCHES	
71.24	MEAN VALUE	28.05	
.08	SE(MEAN)	.03	
3.76	STD DEVIATION	1.48	
.06	SE(STD DEV)	.02	
57.60	MINIMUM	22.68	
85.80	MAXIMUM	33.78	
SYMMETRY---VETA I = .11			
KURTOSIS---VETA II = 3.09			
COEF. OF VARIATION = 5.3%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
77.68	MEAN VALUE	30.58	
.09	SE(MEAN)	.04	
3.80	STD DEVIATION	1.49	
.06	SE(STD DEV)	.03	
63.10	MINIMUM	24.84	
94.10	MAXIMUM	37.05	
SYMMETRY---VETA I = .12			
KURTOSIS---VETA II = 3.18			
COEF. OF VARIATION = 4.9%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	57.55	- 58.55						
0	.00	1	.05	58.55	- 59.55						
2	.09	3	.14	59.55	- 60.55						
6	.27	9	.41	60.55	- 61.55						
12	.54	21	.95	61.55	- 62.55						
20	.91	41	1.86	62.55	- 63.55	1	.06	1	.06		
35	1.59	76	3.44	63.55	- 64.55	1	.06	2	.11		
51	2.31	127	5.75	64.55	- 65.55	1	.06	3	.17		
102	4.62	229	10.37	65.55	- 66.55	0	.00	3	.17		
131	5.93	360	16.30	66.55	- 67.55	2	.11	5	.28		
180	8.15	540	24.46	67.55	- 68.55	4	.23	9	.51		
202	9.15	742	33.61	68.55	- 69.55	11	.62	20	1.13		
223	10.10	965	43.70	69.55	- 70.55	21	1.18	41	2.31		
240	10.87	1205	54.57	70.55	- 71.55	46	2.59	87	4.90		
210	9.51	1415	64.09	71.55	- 72.55	71	4.00	158	8.91		
199	9.01	1614	73.10	72.55	- 73.55	83	4.68	241	13.59		
175	7.93	1789	81.02	73.55	- 74.55	120	6.76	361	20.35		
133	6.02	1922	87.05	74.55	- 75.55	160	9.02	521	29.37		
105	4.76	2027	91.80	75.55	- 76.55	170	9.58	691	38.95		
80	3.62	2107	95.43	76.55	- 77.55	181	10.20	872	49.15		
44	1.99	2151	97.42	77.55	- 78.55	203	11.44	1075	60.60		
21	.95	2172	98.37	78.55	- 79.55	155	8.74	1230	69.33		
19	.86	2191	99.23	79.55	- 80.55	166	9.36	1396	78.69		
6	.27	2197	99.50	80.55	- 81.55	107	6.03	1503	84.72		
4	.18	2201	99.68	81.55	- 82.55	90	5.07	1593	89.80		
4	.18	2205	99.86	82.55	- 83.55	55	3.10	1648	92.90		
1	.05	2206	99.91	83.55	- 84.55	50	2.82	1698	95.72		
1	.05	2207	99.95	84.55	- 85.55	38	2.14	1736	97.86		
1	.05	2208	100.00	85.55	- 86.55	20	1.13	1756	98.99		
				86.55	- 87.55	10	.56	1766	99.55		
				87.55	- 88.55	5	.28	1771	99.83		
				88.55	- 89.55	1	.06	1772	99.89		
				89.55	- 90.55	0	.00	1772	99.89		
				90.55	- 91.55	0	.00	1772	99.89		
				91.55	- 92.55	1	.06	1773	99.94		
				92.55	- 93.55	0	.00	1773	99.94		
				93.55	- 94.55	1	.06	1774	100.00		

## (D48) VERTICAL INDEX FINGERTIP REACH, EXTENDED

The vertical distance between a standing surface and the tip of the right index finger of a subject standing on the tips of the toes and reaching overhead as far as possible with the arms, hands, and fingers straight and parallel is calculated as follows: OVERHEAD FINGERTIP REACH, EXTENDED minus HAND LENGTH plus WRIST-INDEX FINGER LENGTH.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
192.50	75.79	1ST	208.78	82.20	
195.27	76.88	2ND	211.56	83.29	
196.94	77.54	3RD	213.27	83.96	
199.14	78.40	5TH	215.52	84.85	
202.41	79.69	10TH	218.94	86.20	
204.58	80.54	15TH	221.24	87.10	
206.31	81.22	20TH	223.07	87.82	
207.81	81.81	25TH	224.67	88.45	
209.16	82.35	30TH	226.11	89.02	
210.42	82.84	35TH	227.46	89.55	
211.64	83.32	40TH	228.75	90.06	
212.82	83.79	45TH	230.01	90.56	
214.00	84.25	50TH	231.28	91.05	
215.20	84.72	55TH	232.55	91.56	
216.42	85.21	60TH	233.85	92.07	
217.70	85.71	65TH	235.20	92.60	
219.05	86.24	70TH	236.64	93.16	
220.53	86.82	75TH	238.20	93.78	
222.20	87.48	80TH	239.95	94.47	
224.12	88.24	85TH	241.97	95.26	
226.55	89.19	90TH	244.51	96.26	
230.07	90.58	95TH	248.14	97.69	
232.25	91.44	97TH	250.38	98.57	
233.77	92.04	98TH	251.94	99.19	
236.00	92.91	99TH	254.18	100.07	

# VERTICAL INDEX FINGERTIP REACH, EXTENDED

FEMALES			
CM		INCHES	
214.22	MEAN VALUE	84.34	
.20	SE (MEAN)	.08	
9.46	STD DEVIATION	3.72	
.14	SE (STD DEV)	.06	
180.80	MINIMUM	71.18	
246.90	MAXIMUM	97.20	
SYMMETRY---VETA I = .06			
KURTOSIS---VETA II = 3.01			
COEF. OF VARIATION = 4.4%			
NUMBER OF SUBJECTS = 2208			

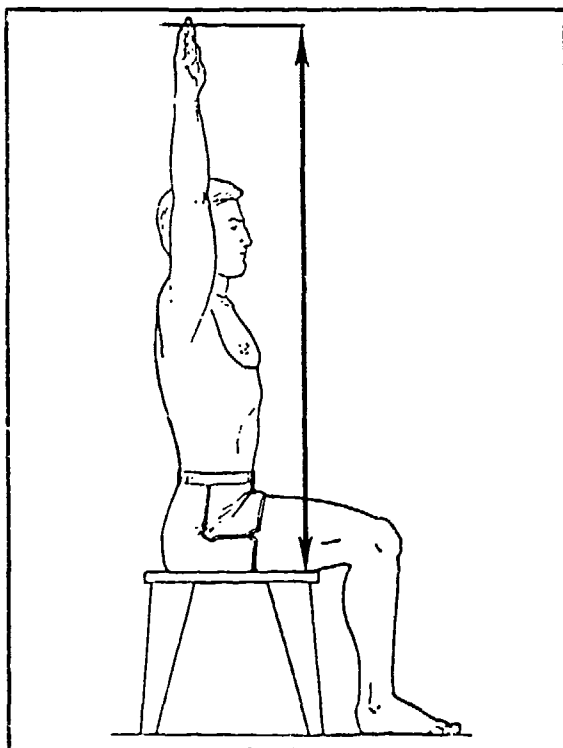
MALES			
CM		INCHES	
231.51	MEAN VALUE	91.14	
.24	SE (MEAN)	.09	
9.95	STD DEVIATION	3.92	
.17	SE (STD DEV)	.07	
190.70	MINIMUM	75.08	
279.90	MAXIMUM	110.20	
SYMMETRY---VETA I = .09			
KURTOSIS---VETA II = 3.25			
COEF. OF VARIATION = 4.3%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE									
FEMALES					MALES				
F	FPct	CumF	CumFPct	CENTIMETERS	F	FPct	CumF	CumFPct	
1	.05	1	.05	179.55 - 181.55					
2	.09	3	.14	181.55 - 183.55					
0	.00	3	.14	183.55 - 185.55					
2	.09	5	.23	185.55 - 187.55					
4	.18	9	.41	187.55 - 189.55					
10	.45	19	.86	189.55 - 191.55	1	.06	1	.06	
10	.45	29	1.31	191.55 - 193.55	0	.00	1	.06	
16	.72	45	2.04	193.55 - 195.55	0	.00	1	.06	
25	1.13	70	3.17	195.55 - 197.55	0	.00	1	.06	
45	2.04	115	5.21	197.55 - 199.55	1	.06	2	.11	
77	3.49	192	8.70	199.55 - 201.55	0	.00	2	.11	
85	3.85	277	12.55	201.55 - 203.55	2	.11	4	.23	
110	4.98	387	17.53	203.55 - 205.55	2	.11	6	.34	
149	6.75	536	24.28	205.55 - 207.55	4	.23	10	.56	
163	7.38	699	31.66	207.55 - 209.55	10	.56	20	1.13	
190	8.61	889	40.26	209.55 - 211.55	16	.90	36	2.03	
196	8.88	1085	49.14	211.55 - 213.55	21	1.18	57	3.21	
148	6.70	1233	55.84	213.55 - 215.55	34	1.92	91	5.13	
176	7.97	1409	63.81	215.55 - 217.55	48	2.71	139	7.84	
158	7.16	1567	70.97	217.55 - 219.55	46	2.59	185	10.43	
153	6.93	1720	77.90	219.55 - 221.55	88	4.96	273	15.39	
129	5.84	1849	83.74	221.55 - 223.55	110	6.20	383	21.59	
95	4.30	1944	88.04	223.55 - 225.55	114	6.43	497	28.02	
76	3.44	2020	91.49	225.55 - 227.55	127	7.16	624	35.17	
59	2.67	2079	94.16	227.55 - 229.55	151	8.51	775	43.69	
55	2.49	2134	96.65	229.55 - 231.55	130	7.33	905	51.01	
29	1.31	2163	97.96	231.55 - 233.55	148	8.34	1053	59.36	
13	.59	2176	98.55	233.55 - 235.55	126	7.10	1179	66.46	
15	.68	2191	99.23	235.55 - 237.55	109	6.14	1288	72.60	
7	.32	2198	99.55	237.55 - 239.55	106	5.98	1394	78.58	
5	.23	2203	99.77	239.55 - 241.55	100	5.64	1494	84.22	
1	.05	2204	99.82	241.55 - 243.55	73	4.11	1567	88.33	
3	.14	2207	99.95	243.55 - 245.55	58	3.27	1625	91.60	
1	.05	2208	100.00	245.55 - 247.55	48	2.71	1673	94.31	
				247.55 - 249.55	34	1.92	1707	96.22	
				249.55 - 251.55	31	1.75	1738	97.97	
				251.55 - 253.55	15	.85	1753	98.82	
				253.55 - 255.55	6	.34	1759	99.15	
				255.55 - 257.55	9	.51	1768	99.66	
				257.55 - 259.55	2	.11	1770	99.77	
				259.55 - 261.55	1	.06	1771	99.83	
				261.55 - 263.55	1	.06	1772	99.89	
				263.55 - 265.55	0	.00	1772	99.89	
				265.55 - 267.55	0	.00	1772	99.89	
				267.55 - 269.55	1	.06	1773	99.94	
				269.55 - 271.55	0	.00	1773	99.94	
				271.55 - 273.55	0	.00	1773	99.94	
				273.55 - 275.55	0	.00	1773	99.94	
				275.55 - 277.55	0	.00	1773	99.94	
				277.55 - 279.55	0	.00	1773	99.94	
				279.55 - 281.55	1	.06	1774	100.00	



# (D49) VERTICAL INDEX FINGERTIP REACH, SITTING

The vertical distance between a sitting surface and the tip of the right index finger of a subject sitting erect and raising the right shoulder, arm, and fingers straight overhead is calculated as follows: OVERHEAD FINGERTIP REACH, SITTING minus HAND LENGTH plus WRIST-INDEX FINGER LENGTH.



## THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
118.78	46.76	1ST	128.17	50.46
120.11	47.29	2ND	129.98	51.17
121.01	47.64	3RD	131.08	51.61
122.27	48.14	5TH	132.51	52.17
124.28	48.93	10TH	134.65	53.01
125.67	49.48	15TH	136.06	53.57
126.78	49.91	20TH	137.17	54.00
127.74	50.29	25TH	138.13	54.38
128.61	50.63	30TH	138.99	54.72
129.40	50.94	35TH	139.78	55.03
130.15	51.24	40TH	140.55	55.33
130.87	51.52	45TH	141.29	55.63
131.59	51.81	50TH	142.03	55.92
132.30	52.08	55TH	142.77	56.21
133.01	52.37	60TH	143.52	56.51
133.74	52.65	65TH	144.31	56.81
134.51	52.96	70TH	145.14	57.14
135.33	53.28	75TH	146.04	57.50
136.25	53.64	80TH	147.06	57.90
137.31	54.06	85TH	148.23	58.36
138.63	54.58	90TH	149.69	58.93
140.59	55.35	95TH	151.81	59.77
141.86	55.85	97TH	153.13	60.29
142.81	56.22	98TH	154.05	60.65
144.32	56.82	99TH	155.40	61.18

# VERTICAL INDEX FINGERTIP REACH, SITTING

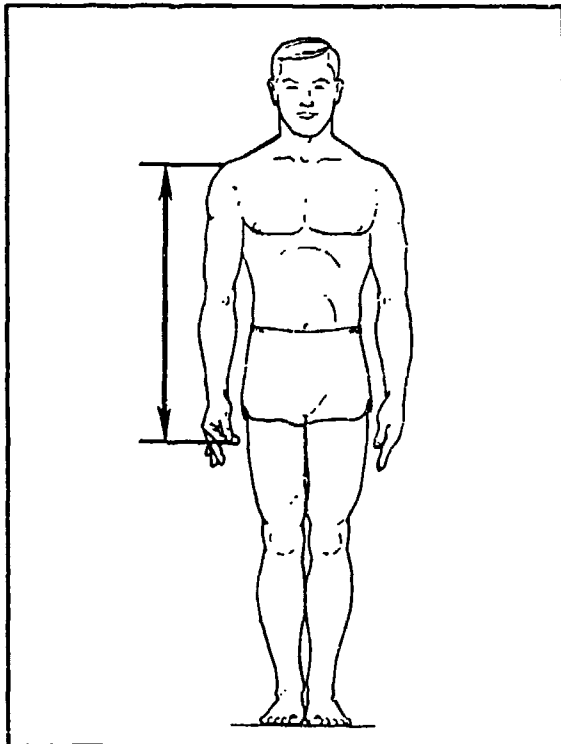
FEMALES			
CM		INCHES	
131.53	MEAN VALUE	51.78	
.12	SE (MEAN)	.05	
5.55	STD DEVIATION	2.19	
.08	SE (STD DEV)	.03	
111.70	MINIMUM	43.98	
149.90	MAXIMUM	59.02	
SYMMETRY---VETA I = -.03			
KURTOSIS---VETA II = 2.92			
COEF. OF VARIATION = 4.2%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
142.09	MEAN VALUE	55.94	
.14	SE (MEAN)	.05	
5.87	STD DEVIATION	2.31	
.10	SE (STD DEV)	.04	
115.40	MINIMUM	45.43	
168.10	MAXIMUM	66.18	
SYMMETRY---VETA I = -.03			
KURTOSIS---VETA II = 3.28			
COEF. OF VARIATION = 4.1%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE									
FEMALES					MALES				
F	FPct	CumF	CumFPct	CENTIMETERS	F	FPct	CumF	CumFPct	
1	.05	1	.05	110.75 - 112.25					
1	.05	2	.09	112.25 - 113.75					
2	.09	4	.18	113.75 - 115.25					
4	.18	8	.36	115.25 - 116.75	1	.06	1	.06	
7	.32	15	.68	116.75 - 118.25	0	.00	1	.06	
23	1.04	38	1.72	118.25 - 119.75	0	.00	1	.06	
39	1.77	77	3.49	119.75 - 121.25	0	.00	1	.06	
48	2.17	125	5.66	121.25 - 122.75	0	.00	1	.06	
85	3.85	210	9.51	122.75 - 124.25	4	.23	5	.28	
115	5.21	325	14.72	124.25 - 125.75	2	.11	7	.39	
160	7.25	485	21.97	125.75 - 127.25	5	.28	12	.68	
208	9.42	693	31.39	127.25 - 128.75	10	.56	22	1.24	
220	9.96	913	41.35	128.75 - 130.25	14	.79	36	2.03	
215	9.74	1128	51.09	130.25 - 131.75	35	1.97	71	4.00	
229	10.37	1357	61.46	131.75 - 133.25	41	2.31	112	6.31	
216	9.78	1573	71.24	133.25 - 134.75	71	4.00	183	10.32	
187	8.47	1760	79.71	134.75 - 136.25	93	5.24	276	15.56	
162	7.34	1922	87.05	136.25 - 137.75	115	6.48	391	22.04	
110	4.98	2032	92.03	137.75 - 139.25	185	10.43	576	32.47	
77	3.49	2109	95.52	139.25 - 140.75	163	9.19	739	41.66	
46	2.08	2155	97.60	140.75 - 142.25	152	8.57	891	50.23	
25	1.13	2180	98.73	142.25 - 143.75	206	11.61	1097	61.84	
13	.59	2193	99.32	143.75 - 145.25	169	9.53	1266	71.36	
10	.45	2203	99.77	145.25 - 146.75	137	7.72	1403	79.09	
4	.18	2207	99.95	146.75 - 148.25	99	5.58	1502	84.67	
0	.00	2207	99.95	148.25 - 149.75	91	5.13	1593	89.80	
1	.05	2208	100.00	149.75 - 151.25	84	4.74	1677	94.53	
				151.25 - 152.75	32	1.80	1709	96.34	
				152.75 - 154.25	35	1.97	1744	98.31	
				154.25 - 155.75	16	.90	1760	99.21	
				155.75 - 157.25	7	.39	1767	99.61	
				157.25 - 158.75	4	.23	1771	99.83	
				158.75 - 160.25	2	.11	1773	99.94	
				160.25 - 161.75	0	.00	1773	99.94	
				161.75 - 163.25	0	.00	1773	99.94	
				163.25 - 164.75	0	.00	1773	99.94	
				164.75 - 166.25	0	.00	1773	99.94	
				166.25 - 167.75	0	.00	1773	99.94	
				167.75 - 169.25	1	.06	1774	100.00	

## (D50) VERTICAL THUMB TIP REACH DOWN

The vertical distance between the acromion landmark on the tip of the right shoulder and the tip of the right thumb of a subject standing erect with the arms held straight down and the thumb lying on the first knuckle of the index finger is calculated as follows: ACROMIAL HEIGHT minus WRIST HEIGHT plus WRIST-THUMB TIP LENGTH.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
58.11	23.88	1ST	64.15	25.26	
58.98	23.22	2ND	65.02	25.60	
59.55	23.44	3RD	65.58	25.82	
60.33	23.75	5TH	66.33	26.11	
61.57	24.24	10TH	67.51	26.58	
62.41	24.57	15TH	68.31	26.90	
63.09	24.84	20TH	68.97	27.15	
63.67	25.07	25TH	69.54	27.38	
64.20	25.27	30TH	70.06	27.58	
64.68	25.47	35TH	70.55	27.77	
65.15	25.65	40TH	71.01	27.96	
65.60	25.83	45TH	71.47	28.14	
66.04	26.00	50TH	71.93	28.32	
66.49	26.18	55TH	72.39	28.50	
66.94	26.35	60TH	72.87	28.69	
67.41	26.54	65TH	73.36	28.88	
67.91	26.74	70TH	73.88	29.09	
68.45	26.95	75TH	74.45	29.31	
69.05	27.19	80TH	75.09	29.56	
69.76	27.46	85TH	75.83	29.85	
70.66	27.82	90TH	76.76	30.22	
72.01	28.35	95TH	78.11	30.75	
72.90	28.70	97TH	78.95	31.08	
73.57	28.97	98TH	79.55	31.32	
74.65	29.39	99TH	80.45	31.67	

# VERTICAL THUMB TIP REACH DOWN

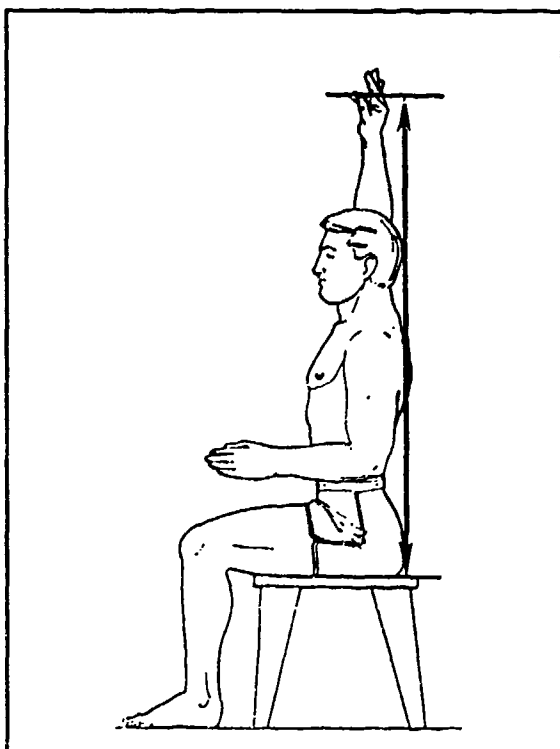
FEMALES			
CM		INCHES	
66.09	MEAN VALUE	26.02	
.08	SE(MEAN)	.03	
3.55	STD DEVIATION	1.40	
.05	SE(STD DEV)	.02	
53.20	MINIMUM	20.94	
79.50	MAXIMUM	31.30	
SYMMETRY---VETA I = .11			
KURTOSIS---VETA II = 3.07			
COEF. OF VARIATION = 5.4%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
72.04	MEAN VALUE	28.36	
.08	SE(MEAN)	.03	
3.58	STD DEVIATION	1.41	
.06	SE(STD DEV)	.02	
58.40	MINIMUM	22.99	
87.30	MAXIMUM	34.37	
SYMMETRY---VETA I = .13			
KURTOSIS---VETA II = 3.13			
COEF. OF VARIATION = 5.0%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	52.55	- 53.55						
0	.00	1	.05	53.55	- 54.55						
0	.00	1	.05	54.55	- 55.55						
7	.32	8	.36	55.55	- 56.55						
5	.23	13	.59	56.55	- 57.55						
19	.86	32	1.45	57.55	- 58.55	1	.06	1	.06		
34	1.54	66	2.99	58.55	- 59.55	0	.00	1	.06		
48	2.17	114	5.16	59.55	- 60.55	2	.11	3	.17		
106	4.80	220	9.96	60.55	- 61.55	0	.00	3	.17		
134	6.07	354	16.03	61.55	- 62.55	1	.06	4	.23		
172	7.79	526	23.82	62.55	- 63.55	4	.23	8	.45		
230	10.42	756	34.24	63.55	- 64.55	13	.73	21	1.18		
242	10.96	998	45.20	64.55	- 65.55	29	1.63	50	2.82		
227	10.28	1225	55.48	65.55	- 66.55	53	2.99	103	5.81		
236	10.69	1461	66.17	66.55	- 67.55	82	4.62	185	10.43		
207	9.38	1668	75.54	67.55	- 68.55	104	5.86	289	16.29		
173	7.84	1841	83.38	68.55	- 69.55	145	8.17	434	24.46		
137	6.20	1978	89.58	69.55	- 70.55	172	9.70	606	34.16		
89	4.03	2067	93.61	70.55	- 71.55	204	11.50	810	45.66		
69	3.13	2136	96.74	71.55	- 72.55	204	11.50	1014	57.16		
29	1.31	2165	98.05	72.55	- 73.55	172	9.70	1186	66.85		
16	.72	2181	98.78	73.55	- 74.55	173	9.75	1359	76.61		
14	.63	2195	99.41	74.55	- 75.55	132	7.44	1491	84.05		
7	.32	2202	99.73	75.55	- 76.55	95	5.36	1586	89.40		
3	.14	2205	99.86	76.55	- 77.55	56	3.16	1642	92.56		
1	.05	2206	99.91	77.55	- 78.55	62	3.49	1704	96.05		
2	.09	2208	100.00	78.55	- 79.55	35	1.97	1739	98.03		
				79.55	- 80.55	23	1.30	1762	99.32		
				80.55	- 81.55	6	.34	1768	99.66		
				81.55	- 82.55	2	.11	1770	99.77		
				82.55	- 83.55	2	.11	1772	99.89		
				83.55	- 84.55	0	.00	1772	99.89		
				84.55	- 85.55	0	.00	1772	99.89		
				85.55	- 86.55	1	.06	1773	99.94		
				86.55	- 87.55	1	.06	1774	100.00		

## (D51) VERTICAL THUMB TIP REACH, SITTING

The vertical distance between a sitting surface and the tip of the right thumb of a subject sitting erect with the right shoulder, arm, and hand held straight overhead with the thumb lying on the first knuckle of the index finger is calculated as follows: **OVERHEAD FINGERTIP REACH, SITTING** minus **HAND LENGTH** plus **WRIST-THUMB TIP LENGTH**.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
113.96	44.87	1ST	122.95	48.41
115.30	45.39	2ND	124.76	49.12
116.18	45.74	3RD	125.84	49.54
117.41	46.22	5TH	127.24	50.09
119.36	46.99	10TH	129.29	50.90
120.71	47.52	15TH	130.64	51.43
121.77	47.94	20TH	131.70	51.85
122.70	48.31	25TH	132.62	52.21
123.53	48.63	30TH	133.44	52.54
124.30	48.94	35TH	134.21	52.84
125.02	49.22	40TH	134.94	53.13
125.72	49.50	45TH	135.66	53.41
126.42	49.77	50TH	136.38	53.69
127.10	50.04	55TH	137.10	53.98
127.80	50.31	60TH	137.83	54.27
128.51	50.59	65TH	138.60	54.57
129.25	50.89	70TH	139.42	54.89
130.06	51.20	75TH	140.30	55.24
130.95	51.56	80TH	141.30	55.63
131.98	51.96	85TH	142.45	56.08
133.26	52.47	90TH	143.88	56.65
135.15	53.21	95TH	145.93	57.45
136.36	53.69	97TH	147.18	57.95
137.26	54.04	98TH	148.04	58.28
138.66	54.59	99TH	149.26	58.76

# VERTICAL THUMB TIP REACH, SITTING

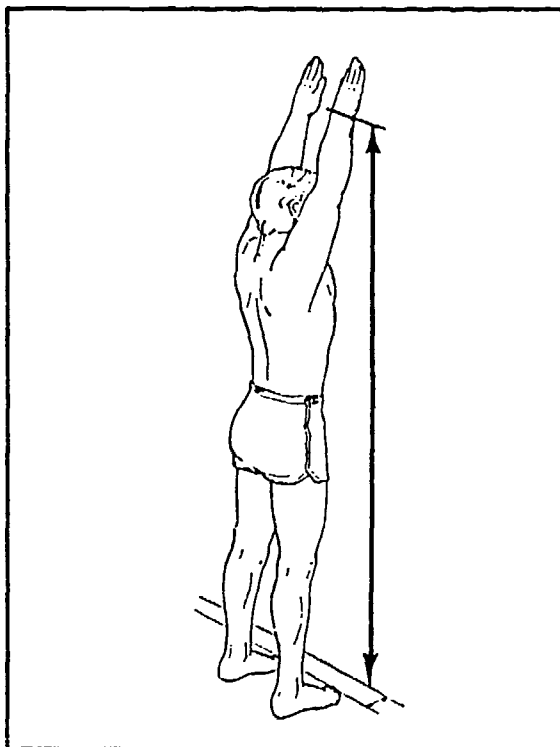
FEMALES			
CM		INCHES	
126.37	MEAN VALUE	49.75	
.11	SE(MEAN)	.04	
5.36	STD DEVIATION	2.11	
.08	SE(STD DEV)	.03	
107.40	MINIMUM	42.28	
144.30	MAXIMUM	56.81	
SYMMETRY---VETA I = -.04			
KURTOSIS---VETA II = 2.91			
COEF. OF VARIATION = 4.2%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
136.44	MEAN VALUE	53.72	
.13	SE(MEAN)	.05	
5.68	STD DEVIATION	2.24	
.10	SE(STD DEV)	.04	
110.70	MINIMUM	43.58	
161.30	MAXIMUM	63.50	
SYMMETRY---VETA I = -.03			
KURTOSIS---VETA II = 3.22			
COEF. OF VARIATION = 4.2%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE															
FEMALES								MALES							
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct						
1	.05	1	.05	106.55	- 107.55	1	.06	1	.06						
1	.05	2	.09	107.55	- 108.55	0	.00	1	.06						
0	.00	2	.09	108.55	- 109.55	0	.00	1	.06						
2	.09	4	.18	109.55	- 110.55	0	.00	1	.06						
3	.14	7	.32	110.55	- 111.55	0	.00	1	.06						
4	.18	11	.50	111.55	- 112.55	0	.00	1	.06						
6	.27	17	.77	112.55	- 113.55	0	.00	1	.06						
11	.50	28	1.27	113.55	- 114.55	0	.00	1	.06						
23	1.04	51	2.31	114.55	- 115.55	0	.00	1	.06						
29	1.31	80	3.62	115.55	- 116.55	0	.00	1	.06						
37	1.68	117	5.30	116.55	- 117.55	0	.00	1	.06						
40	1.81	157	7.11	117.55	- 118.55	3	.17	4	.23						
68	3.08	225	10.19	118.55	- 119.55	0	.00	4	.23						
73	3.31	298	13.50	119.55	- 120.55	2	.11	6	.34						
109	4.94	407	18.43	120.55	- 121.55	4	.23	10	.56						
127	5.75	534	24.18	121.55	- 122.55	6	.34	16	.90						
136	6.16	670	30.34	122.55	- 123.55	7	.39	23	1.30						
152	6.88	822	37.23	123.55	- 124.55	5	.28	28	1.58						
153	6.93	975	44.16	124.55	- 125.55	20	1.13	48	2.71						
156	7.07	1131	51.22	125.55	- 126.55	23	1.30	71	4.00						
140	6.34	1271	57.56	126.55	- 127.55	30	1.69	101	5.69						
161	7.29	1432	64.86	127.55	- 128.55	40	2.25	141	7.95						
146	6.61	1578	71.47	128.55	- 129.55	52	2.93	193	10.88						
133	6.02	1711	77.49	129.55	- 130.55	57	3.21	250	14.09						
125	5.66	1836	83.15	130.55	- 131.55	92	5.19	342	19.28						
98	4.44	1934	87.59	131.55	- 132.55	90	5.07	432	24.35						
77	3.49	2011	91.08	132.55	- 133.55	127	7.16	559	31.51						
62	2.81	2073	93.89	133.55	- 134.55	110	6.20	669	37.71						
50	2.26	2123	96.15	134.55	- 135.55	110	6.20	779	43.91						
23	1.04	2146	97.19	135.55	- 136.55	117	6.60	896	50.51						
26	1.18	2172	98.37	136.55	- 137.55	133	7.50	1029	58.00						
15	.68	2187	99.05	137.55	- 138.55	126	7.10	1155	65.11						
4	.18	2191	99.23	138.55	- 139.55	103	5.81	1258	70.91						
8	.36	2199	99.59	139.55	- 140.55	116	6.54	1374	77.45						
8	.36	2207	99.95	140.55	- 141.55	68	3.83	1442	81.29						
0	.00	2207	99.95	141.55	- 142.55	76	4.28	1518	85.57						
0	.00	2207	99.95	142.55	- 143.55	57	3.21	1575	88.78						
1	.05	2208	100.00	143.55	- 144.55	60	3.38	1635	92.16						
				144.55	- 145.55	47	2.65	1682	94.81						
				145.55	- 146.55	25	1.41	1707	96.22						
				146.55	- 147.55	24	1.35	1731	97.58						
				147.55	- 148.55	19	1.07	1750	98.65						
				148.55	- 149.55	10	.56	1760	99.21						
				149.55	- 150.55	6	.34	1766	99.55						
				150.55	- 151.55	5	.28	1771	99.83						
				151.55	- 152.55	0	.00	1771	99.83						
				152.55	- 153.55	1	.06	1772	99.89						
				153.55	- 154.55	1	.06	1773	99.94						
				154.55	- 155.55	0	.00	1773	99.94						
				155.55	- 156.55	0	.00	1773	99.94						
				156.55	- 157.55	0	.00	1773	99.94						
				157.55	- 158.55	0	.00	1773	99.94						
				158.55	- 159.55	0	.00	1773	99.94						
				159.55	- 160.55	0	.00	1773	99.94						
				160.55	- 161.55	1	.06	1774	100.00						

## (D52) VERTICAL WRIST HEIGHT

The vertical distance between a standing surface and the stylium landmark on the right wrist of a subject standing erect with the shoulder, arm, and hand held straight overhead is calculated as follows: OVERHEAD FINGERTIP REACH minus HAND LENGTH.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
168.38	66.29	1ST	182.72	71.94	
170.93	67.29	2ND	185.42	73.00	
172.46	67.90	3RD	187.04	73.64	
174.46	68.68	5TH	189.17	74.47	
177.42	69.85	10TH	192.33	75.72	
179.39	70.62	15TH	194.44	76.55	
180.94	71.24	20TH	196.11	77.21	
182.29	71.77	25TH	197.57	77.78	
183.51	72.25	30TH	198.89	78.30	
184.64	72.69	35TH	200.12	78.79	
185.74	73.12	40TH	201.30	79.25	
186.80	73.54	45TH	202.45	79.71	
187.87	73.96	50TH	203.61	80.16	
188.95	74.39	55TH	204.77	80.62	
190.06	74.82	60TH	205.96	81.09	
191.21	75.28	65TH	207.19	81.57	
192.44	75.76	70TH	208.51	82.09	
193.79	76.29	75TH	209.93	82.65	
195.30	76.89	80TH	211.52	83.28	
197.07	77.58	85TH	213.35	84.00	
199.30	78.46	90TH	215.62	84.89	
202.55	79.75	95TH	218.81	86.15	
204.59	80.55	97TH	220.72	86.90	
206.03	81.12	98TH	222.00	87.40	
208.16	81.95	99TH	223.76	88.09	

# VERTICAL WRIST HEIGHT

FEMALES			
CM		INCHES	
188.10	MEAN VALUE	74.06	
.18	SE (MEAN)	.07	
8.55	STD DEVIATION	3.37	
.13	SE (STD DEV)	.05	
156.00	MINIMUM	61.42	
218.10	MAXIMUM	85.87	
SYMMETRY---VETA I = .07			
KURTOSIS---VETA II = 3.00			
COEF. OF VARIATION = 4.6%			
NUMBER OF SUBJECTS = 2206			

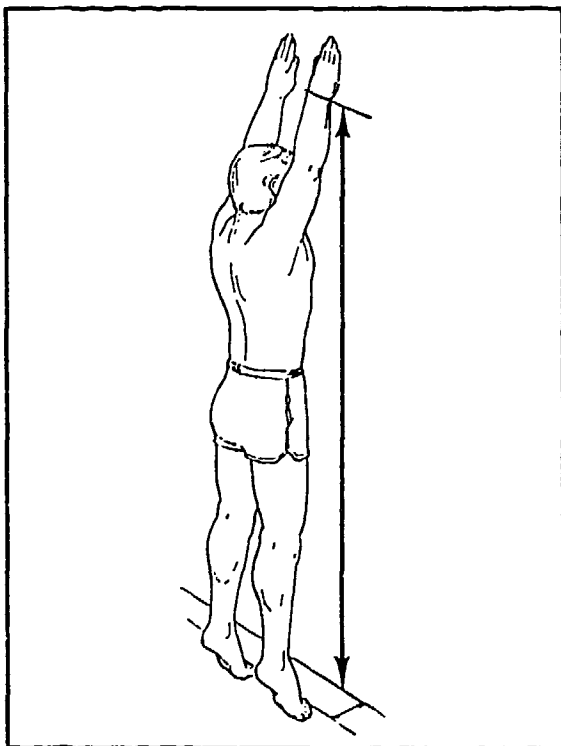
MALES			
CM		INCHES	
203.76	MEAN VALUE	80.22	
.22	SE (MEAN)	.08	
9.07	STD DEVIATION	3.57	
.15	SE (STD DEV)	.06	
163.80	MINIMUM	64.49	
244.80	MAXIMUM	96.38	
SYMMETRY---VETA I = .04			
KURTOSIS---VETA II = 3.26			
COEF. OF VARIATION = 4.4%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	155.55 - 157.55							
1	.05	2	.09	157.55 - 159.55							
1	.05	3	.14	159.55 - 161.55							
2	.09	5	.23	161.55 - 163.55							
3	.14	8	.36	163.55 - 165.55		1	.06	1	.06		
10	.45	18	.82	165.55 - 167.55		0	.00	1	.06		
12	.54	30	1.36	167.55 - 169.55		0	.00	1	.06		
20	.91	50	2.26	169.55 - 171.55		0	.00	1	.06		
33	1.49	83	3.76	171.55 - 173.55		0	.00	1	.06		
52	2.36	135	6.11	173.55 - 175.55		0	.00	1	.06		
95	4.30	230	10.42	175.55 - 177.55		2	.11	3	.17		
116	5.25	346	15.67	177.55 - 179.55		3	.17	6	.34		
153	6.93	499	22.60	179.55 - 181.55		9	.51	15	.85		
178	8.06	677	30.66	181.55 - 183.55		6	.34	21	1.18		
211	9.56	888	40.22	183.55 - 185.55		13	.73	34	1.92		
207	9.38	1095	49.59	185.55 - 187.55		27	1.52	61	3.44		
178	8.06	1273	57.65	187.55 - 189.55		37	2.09	98	5.52		
177	8.02	1450	65.67	189.55 - 191.55		61	3.44	159	8.96		
168	7.61	1618	73.28	191.55 - 193.55		61	3.44	220	12.40		
158	7.16	1776	80.43	193.55 - 195.55		105	5.92	325	18.32		
128	5.80	1904	86.23	195.55 - 197.55		124	6.99	449	25.31		
99	4.48	2003	90.72	197.55 - 199.55		132	7.44	581	32.75		
74	3.35	2077	94.07	199.55 - 201.55		141	7.95	722	40.70		
46	2.08	2123	96.15	201.55 - 203.55		153	8.62	875	49.32		
36	1.63	2159	97.78	203.55 - 205.55		169	9.53	1044	58.85		
19	.86	2178	98.64	205.55 - 207.55		127	7.16	1171	66.01		
18	.82	2196	99.46	207.55 - 209.55		144	8.12	1315	74.13		
4	.18	2200	99.64	209.55 - 211.55		97	5.47	1412	79.59		
5	.23	2205	99.86	211.55 - 213.55		105	5.92	1517	85.51		
0	.00	2205	99.86	213.55 - 215.55		82	4.62	1599	90.14		
2	.09	2207	99.95	215.55 - 217.55		57	3.21	1656	93.35		
1	.05	2208	100.00	217.55 - 219.55		44	2.48	1700	95.83		
				219.55 - 221.55		35	1.97	1735	97.80		
				221.55 - 223.55		20	1.13	1755	98.93		
				223.55 - 225.55		8	.45	1763	99.38		
				225.55 - 227.55		5	.28	1768	99.66		
				227.55 - 229.55		3	.17	1771	99.83		
				229.55 - 231.55		0	.00	1771	99.83		
				231.55 - 233.55		1	.06	1772	99.89		
				233.55 - 235.55		0	.00	1772	99.89		
				235.55 - 237.55		0	.00	1772	99.89		
				237.55 - 239.55		0	.00	1772	99.89		
				239.55 - 241.55		0	.00	1772	99.89		
				241.55 - 243.55		1	.06	1773	99.94		
				243.55 - 245.55		1	.06	1774	100.00		



## (D53) VERTICAL WRIST HEIGHT, EXTENDED

The vertical distance between a standing surface and the stylium landmark on the right wrist of a subject standing on the toes and reaching straight overhead as far as possible is calculated as follows: OVERHEAD FINGERTIP REACH, EXTENDED minus HAND LENGTH.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
177.23	69.78	1ST	191.89	75.55	
179.68	70.74	2ND	194.58	76.61	
181.19	71.33	3RD	196.23	77.26	
183.18	72.12	5TH	198.41	78.11	
186.21	73.31	10TH	201.67	79.40	
188.25	74.11	15TH	203.85	80.26	
189.87	74.75	20TH	205.58	80.94	
191.28	75.31	25TH	207.08	81.53	
192.56	75.81	30TH	208.44	82.06	
193.74	76.28	35TH	209.70	82.56	
194.88	76.73	40TH	210.90	83.03	
195.99	77.16	45TH	212.08	83.50	
197.10	77.60	50TH	213.25	83.96	
198.23	78.04	55TH	214.44	84.42	
199.37	78.49	60TH	215.64	84.90	
200.56	78.96	65TH	216.90	85.39	
201.82	79.46	70TH	218.23	85.92	
203.20	80.00	75TH	219.68	86.49	
204.75	80.61	80TH	221.31	87.13	
206.55	81.32	85TH	223.19	87.87	
208.81	82.21	90TH	225.56	88.80	
212.11	83.51	95TH	228.99	90.15	
214.17	84.32	97TH	231.13	91.00	
215.64	84.90	98TH	232.64	91.59	
217.82	85.75	99TH	234.85	92.46	

# VERTICAL WRIST HEIGHT, EXTENDED

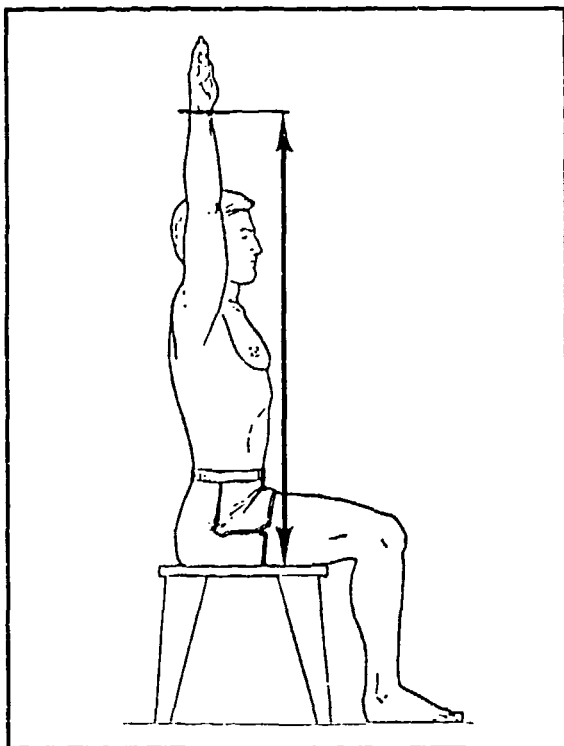
FEMALES			
CM		INCHES	
197.30	MEAN VALUE	77.68	
.19	SE (MEAN)	.07	
8.81	STD DEVIATION	3.47	
.13	SE (STD DEV)	.05	
165.90	MINIMUM	65.31	
227.60	MAXIMUM	89.61	
SYMMETRY---VETA I	=	.07	
KURTOSIS---VETA II	=	3.00	
COEF. OF VARIATION	=	4.5%	
NUMBER OF SUBJECTS	=	2208	

MALES			
CM		INCHES	
213.42	MEAN VALUE	84.02	
.22	SE (MEAN)	.09	
9.31	STD DEVIATION	3.66	
.16	SE (STD DEV)	.06	
175.60	MINIMUM	69.13	
258.30	MAXIMUM	101.69	
SYMMETRY---VETA I	=	.08	
KURTOSIS---VETA II	=	3.20	
COEF. OF VARIATION	=	4.4%	
NUMBER OF SUBJECTS	=	1774	

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
3	.14	3	.14	165.55 - 167.55							
0	.00	3	.14	167.55 - 169.55							
1	.05	4	.18	169.55 - 171.55							
2	.09	6	.27	171.55 - 173.55							
10	.45	16	.72	173.55 - 175.55							
10	.45	26	1.18	175.55 - 177.55							
15	.68	41	1.86	177.55 - 179.55		1	.06	1	.06		
27	1.22	68	3.08	179.55 - 181.55		0	.00	1	.06		
49	2.22	117	5.30	181.55 - 183.55		1	.06	2	.11		
77	3.49	194	8.79	183.55 - 185.55		1	.06	3	.17		
97	4.39	291	13.18	185.55 - 187.55		1	.06	4	.23		
115	5.21	406	18.39	187.55 - 189.55		5	.28	9	.51		
172	7.79	578	26.18	189.55 - 191.55		7	.39	16	.90		
189	8.56	767	34.74	191.55 - 193.55		10	.56	26	1.47		
210	9.51	977	44.25	193.55 - 195.55		17	.96	43	2.42		
178	8.06	1155	52.31	195.55 - 197.55		30	1.69	73	4.11		
187	8.47	1342	60.78	197.55 - 199.55		43	2.42	116	6.54		
162	7.34	1504	68.12	199.55 - 201.55		43	2.42	159	8.96		
169	7.65	1673	75.77	201.55 - 203.55		90	5.07	249	14.04		
143	6.48	1816	82.25	203.55 - 205.55		105	5.92	354	19.95		
116	5.25	1932	87.50	205.55 - 207.55		124	6.99	478	26.94		
83	3.76	2015	91.26	207.55 - 209.55		128	7.22	606	34.16		
65	2.94	2080	94.20	209.55 - 211.55		161	9.08	767	43.24		
56	2.54	2136	96.74	211.55 - 213.55		141	7.95	908	51.18		
33	1.49	2169	98.23	213.55 - 215.55		166	9.36	1074	60.54		
11	.50	2180	98.73	215.55 - 217.55		123	6.93	1197	67.47		
16	.72	2196	99.46	217.55 - 219.55		123	6.93	1320	74.41		
5	.23	2201	99.68	219.55 - 221.55		101	5.69	1421	80.10		
3	.14	2204	99.82	221.55 - 223.55		95	5.36	1516	85.46		
2	.09	2206	99.91	223.55 - 225.55		80	4.51	1596	89.97		
1	.05	2207	99.95	225.55 - 227.55		58	3.27	1654	93.24		
1	.05	2208	100.00	227.55 - 229.55		36	2.03	1690	95.26		
				229.55 - 231.55		44	2.48	1734	97.75		
				231.55 - 233.55		16	.90	1750	98.65		
				233.55 - 235.55		9	.51	1759	99.15		
				235.55 - 237.55		10	.56	1769	99.72		
				237.55 - 239.55		2	.11	1771	99.83		
				239.55 - 241.55		0	.00	1771	99.83		
				241.55 - 243.55		1	.06	1772	99.89		
				243.55 - 245.55		0	.00	1772	99.89		
				245.55 - 247.55		0	.00	1772	99.89		
				247.55 - 249.55		1	.06	1773	99.94		
				249.55 - 251.55		0	.00	1773	99.94		
				251.55 - 253.55		0	.00	1773	99.94		
				253.55 - 255.55		0	.00	1773	99.94		
				255.55 - 257.55		0	.00	1773	99.94		
				257.55 - 259.55		1	.06	1774	100.00		

## (D54) VERTICAL WRIST HEIGHT, SITTING

The vertical distance between a sitting surface and the styloid landmark on the right wrist of a subject sitting erect reaching straight overhead is calculated as follows: **OVERHEAD FINGERTIP REACH, SITTING** minus **HAND LENGTH**.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
103.03	40.56	1ST	111.34	43.84
104.34	41.08	2ND	113.06	44.51
105.19	41.41	3RD	114.08	44.91
106.34	41.87	5TH	115.41	45.44
108.15	42.58	10TH	117.35	46.20
109.38	43.06	15TH	118.62	46.70
110.35	43.45	20TH	119.61	47.09
111.20	43.78	25TH	120.47	47.43
111.96	44.08	30TH	121.23	47.73
112.67	44.36	35TH	121.95	48.01
113.33	44.62	40TH	122.63	48.28
113.98	44.87	45TH	123.29	48.54
114.62	45.13	50TH	123.95	48.80
115.26	45.38	55TH	124.62	49.06
115.90	45.63	60TH	125.30	49.33
116.57	45.89	65TH	126.01	49.61
117.27	46.17	70TH	126.76	49.90
118.02	46.46	75TH	127.57	50.22
118.86	46.79	80TH	128.49	50.58
119.82	47.17	85TH	129.54	51.00
121.03	47.65	90TH	130.87	51.52
122.77	48.34	95TH	132.77	52.27
123.89	48.77	97TH	133.95	52.73
124.68	49.09	98TH	134.76	53.06
125.90	49.57	99TH	135.94	53.52

# VERTICAL WRIST HEIGHT, SITTING

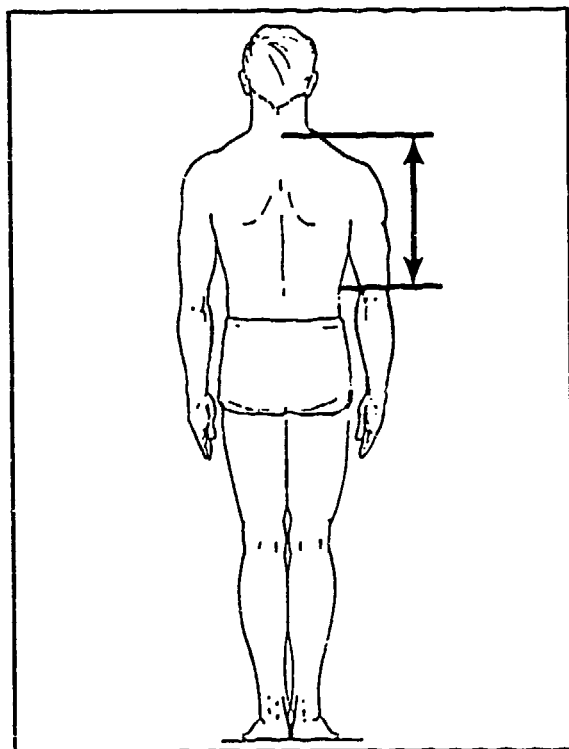
FEMALES			
CM		INCHES	
114.61	MEAN VALUE	45.12	
.11	SE (MEAN)	.04	
4.98	STD DEVIATION	1.96	
.07	SE (STD DEV)	.03	
96.80	MINIMUM	38.11	
131.70	MAXIMUM	51.85	
SYMMETRY---VETA I = -.02			
KURTOSIS---VETA II = 2.91			
COEF. OF VARIATION = 4.3%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
124.00	MEAN VALUE	48.82	
.13	SE (MEAN)	.05	
5.30	STD DEVIATION	2.08	
.09	SE (STD DEV)	.04	
100.30	MINIMUM	39.49	
146.50	MAXIMUM	57.68	
SYMMETRY---VETA I = -.03			
KURTOSIS---VETA II = 3.21			
COEF. OF VARIATION = 4.3%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	96.55	- 97.55						
1	.05	2	.09	97.55	- 98.55						
2	.09	4	.18	98.55	- 99.55						
2	.09	6	.27	99.55	- 100.55						
2	.09	8	.36	100.55	- 101.55	1	.06	1	.06		
6	.27	14	.63	101.55	- 102.55	0	.00	1	.06		
14	.63	28	1.27	102.55	- 103.55	0	.00	1	.06		
20	.91	48	2.17	103.55	- 104.55	0	.00	1	.06		
30	1.36	78	3.53	104.55	- 105.55	0	.00	1	.06		
45	2.04	123	5.57	105.55	- 106.55	0	.00	1	.06		
41	1.86	164	7.43	106.55	- 107.55	0	.00	1	.06		
82	3.71	246	11.14	107.55	- 108.55	2	.11	3	.17		
102	4.62	348	15.76	108.55	- 109.55	2	.11	5	.28		
119	5.39	467	21.15	109.55	- 110.55	3	.17	8	.45		
139	6.30	606	27.45	110.55	- 111.55	4	.23	12	.68		
155	7.02	761	34.47	111.55	- 112.55	9	.51	21	1.18		
176	7.97	937	42.44	112.55	- 113.55	5	.28	26	1.47		
154	6.97	1091	49.41	113.55	- 114.55	15	.85	41	2.31		
166	7.52	1257	56.93	114.55	- 115.55	19	1.07	60	3.38		
162	7.34	1419	64.27	115.55	- 116.55	36	2.03	96	5.41		
165	7.47	1584	71.74	116.55	- 117.55	41	2.31	137	7.72		
142	6.43	1726	78.17	117.55	- 118.55	45	2.54	182	10.26		
136	6.16	1862	84.33	118.55	- 119.55	79	4.45	261	14.71		
85	3.85	1947	88.18	119.55	- 120.55	81	4.57	342	19.28		
80	3.62	2027	91.80	120.55	- 121.55	105	5.92	447	25.20		
62	2.81	2089	94.61	121.55	- 122.55	141	7.95	588	33.15		
40	1.81	2129	96.42	122.55	- 123.55	127	7.16	715	40.30		
29	1.31	2158	97.74	123.55	- 124.55	110	6.20	825	46.51		
23	1.04	2181	98.78	124.55	- 125.55	126	7.10	951	53.61		
9	.41	2190	99.18	125.55	- 126.55	145	8.17	1096	61.78		
10	.45	2200	99.64	126.55	- 127.55	128	7.22	1224	69.00		
4	.18	2204	99.82	127.55	- 128.55	105	5.92	1329	74.92		
3	.14	2207	99.95	128.55	- 129.55	105	5.92	1434	80.83		
0	.00	2207	99.95	129.55	- 130.55	77	4.34	1511	85.17		
0	.00	2207	99.95	130.55	- 131.55	59	3.33	1570	88.50		
1	.05	2208	100.00	131.55	- 132.55	58	3.27	1628	91.77		
				132.55	- 133.55	52	2.93	1680	94.70		
				133.55	- 134.55	30	1.69	1710	96.39		
				134.55	- 135.55	28	1.58	1738	97.97		
				135.55	- 136.55	13	.73	1751	98.70		
				136.55	- 137.55	10	.56	1761	99.27		
				137.55	- 138.55	7	.39	1768	99.66		
				138.55	- 139.55	3	.17	1771	99.83		
				139.55	- 140.55	0	.00	1771	99.83		
				140.55	- 141.55	2	.11	1773	99.94		
				141.55	- 142.55	0	.00	1773	99.94		
				142.55	- 143.55	0	.00	1773	99.94		
				143.55	- 144.55	0	.00	1773	99.94		
				144.55	- 145.55	0	.00	1773	99.94		
				145.55	- 146.55	1	.06	1774	100.00		

## (D55) WAIST BACK, VERTICAL (NATURAL INDENTATION)

The vertical distance between the cervicale landmark at the base of the back of the neck and the level of the waist at its natural indentation is calculated as follows: CERVICALE HEIGHT minus WAIST HEIGHT (NATURAL INDENTATION).



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
30.30	11.93	1ST	34.26	13.49	
30.70	12.09	2ND	34.81	13.70	
30.99	12.20	3RD	35.16	13.84	
31.42	12.37	5TH	35.65	14.04	
32.14	12.65	10TH	36.41	14.34	
32.66	12.86	15TH	36.94	14.54	
33.09	13.03	20TH	37.36	14.71	
33.47	13.18	25TH	37.72	14.85	
33.81	13.31	30TH	38.05	14.98	
34.14	13.44	35TH	38.36	15.10	
34.45	13.56	40TH	38.65	15.22	
34.75	13.68	45TH	38.93	15.33	
35.05	13.80	50TH	39.21	15.44	
35.36	13.92	55TH	39.49	15.55	
35.67	14.04	60TH	39.78	15.66	
35.99	14.17	65TH	40.07	15.78	
36.33	14.30	70TH	40.39	15.90	
36.70	14.45	75TH	40.72	16.03	
37.12	14.61	80TH	41.10	16.18	
37.61	14.81	85TH	41.53	16.35	
38.24	15.05	90TH	42.08	16.57	
39.19	15.43	95TH	42.87	16.88	
39.82	15.68	97TH	43.37	17.07	
40.30	15.87	98TH	43.73	17.22	
41.08	16.17	99TH	44.28	17.43	

# WAIST BACK, VERTICAL (NATURAL INDENTATION)

## FEMALES

CM		INCHES
35.14	MEAN VALUE	13.84
.05	SE(MEAN)	.02
2.36	STD DEVIATION	.93
.04	SE(STD DEV)	.00
27.70	MINIMUM	10.91
43.80	MAXIMUM	17.24

SYMMETRY---VETA I	=	.24
KURTOSIS---VETA II	=	2.97
COEF. OF VARIATION	=	6.7%
NUMBER OF SUBJECTS	=	2208

## MALES

CM		INCHES
39.23	MEAN VALUE	15.45
.05	SE(MEAN)	.02
2.18	STD DEVIATION	.86
.04	SE(STD DEV)	.00
32.60	MINIMUM	12.83
47.30	MAXIMUM	18.62

SYMMETRY---VETA I	=	.07
KURTOSIS---VETA II	=	2.88
COEF. OF VARIATION	=	5.6%
NUMBER OF SUBJECTS	=	1774

## FREQUENCY TABLE

### FEMALES

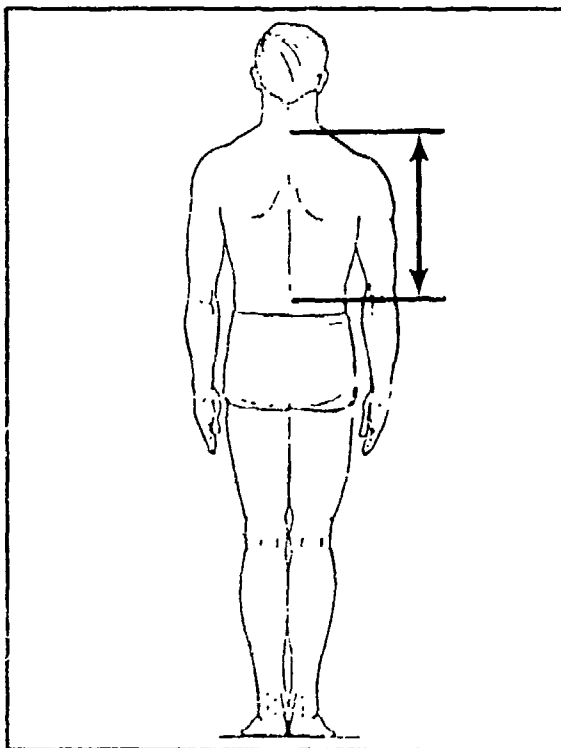
F	FPct	CumF	CumFPct	CENTIMETERS
1	.05	1	.05	27.25 - 27.75
2	.09	3	.14	27.75 - 28.25
1	.05	4	.18	28.25 - 28.75
1	.05	5	.23	28.75 - 29.25
4	.18	9	.41	29.25 - 29.75
11	.50	20	.91	29.75 - 30.25
25	1.13	45	2.04	30.25 - 30.75
47	2.13	92	4.17	30.75 - 31.25
61	2.76	153	6.93	31.25 - 31.75
97	4.39	250	11.32	31.75 - 32.25
96	4.35	346	15.67	32.25 - 32.75
136	6.16	482	21.83	32.75 - 33.25
141	6.39	623	28.22	33.25 - 33.75
182	8.24	805	36.46	33.75 - 34.25
203	9.19	1008	45.65	34.25 - 34.75
186	8.42	1194	54.08	34.75 - 35.25
174	7.88	1368	61.96	35.25 - 35.75
144	6.52	1512	68.48	35.75 - 36.25
149	6.75	1661	75.23	36.25 - 36.75
132	5.98	1793	81.20	36.75 - 37.25
114	5.16	1907	86.37	37.25 - 37.75
78	3.53	1985	89.90	37.75 - 38.25
69	3.13	2054	93.03	38.25 - 38.75
53	2.40	2107	95.43	38.75 - 39.25
36	1.63	2143	97.06	39.25 - 39.75
16	.72	2159	97.78	39.75 - 40.25
19	.86	2178	98.64	40.25 - 40.75
12	.54	2190	99.18	40.75 - 41.25
8	.36	2198	99.55	41.25 - 41.75
6	.27	2204	99.82	41.75 - 42.25
0	.00	2204	99.82	42.25 - 42.75
2	.09	2206	99.91	42.75 - 43.25
1	.05	2207	99.95	43.25 - 43.75
1	.05	2208	100.00	43.75 - 44.25
				44.25 - 44.75
				44.75 - 45.25
				45.25 - 45.75
				45.75 - 46.25
				46.25 - 46.75
				46.75 - 47.25
				47.25 - 47.75

### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
1	.06	2	.11
5	.28	7	.39
10	.56	17	.96
18	1.01	35	1.97
24	1.35	59	3.33
37	2.09	96	5.41
52	2.93	148	8.34
78	4.40	226	12.74
103	5.81	329	18.55
122	6.88	451	25.42
158	8.91	609	34.33
145	8.17	754	42.50
144	8.12	898	50.62
156	8.79	1054	59.41
145	8.17	1199	67.59
137	7.72	1336	75.31
111	6.26	1447	81.57
97	5.47	1544	87.03
81	4.57	1625	91.60
58	3.27	1683	94.87
34	1.92	1717	96.79
23	1.30	1740	98.08
15	.85	1755	98.93
9	.51	1764	99.44
4	.23	1768	99.66
4	.23	1772	99.89
0	.00	1772	99.89
1	.06	1773	99.94
0	.00	1773	99.94
1	.06	1774	100.00

## (D56) WAIST BACK, VERTICAL (OMPHALION)

The vertical distance between the cervicale landmark at the base of the back of the neck and the waist at the level of the navel (omphalion) is calculated as follows: CERVICALE HEIGHT minus WAIST HEIGHT (OMPHALION).



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
37.68	14.83	1ST	40.53	15.96
38.19	15.03	2ND	41.11	16.18
38.53	15.17	3RD	41.50	16.34
39.00	15.35	5TH	42.05	16.55
39.75	15.65	10TH	42.92	16.90
40.27	15.86	15TH	43.52	17.13
40.69	16.02	20TH	43.99	17.32
41.05	16.16	25TH	44.40	17.48
41.38	16.29	30TH	44.76	17.62
41.68	16.41	35TH	45.10	17.75
41.97	16.52	40TH	45.41	17.88
42.25	16.63	45TH	45.72	18.00
42.53	16.74	50TH	46.02	18.12
42.81	16.85	55TH	46.31	18.23
43.09	16.96	60TH	46.62	18.35
43.38	17.08	65TH	46.93	18.48
43.70	17.20	70TH	47.26	18.61
44.04	17.34	75TH	47.62	18.75
44.42	17.49	80TH	48.04	18.91
44.88	17.67	85TH	48.52	19.10
45.47	17.90	90TH	49.17	19.36
46.38	18.26	95TH	50.21	19.77
47.00	18.50	97TH	50.95	20.06
47.48	18.69	98TH	51.54	20.29
48.27	19.00	99TH	52.56	20.69

# WAIST BACK, VERTICAL (OMPHALION)

FEMALES			
CM		INCHES	
42.59	MEAN VALUE	16.77	
.05	SE (MEAN)	.02	
2.24	STD DEVIATION	.88	
.03	SE (STD DEV)	.00	
35.50	MINIMUM	13.98	
52.00	MAXIMUM	20.47	
SYMMETRY---VETA I = .20			
KURTOSIS---VETA II = 3.22			
COEF. OF VARIATION = 5.3%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
46.06	MEAN VALUE	18.13	
.06	SE (MEAN)	.02	
2.47	STD DEVIATION	.97	
.04	SE (STD DEV)	.02	
37.90	MINIMUM	14.92	
55.60	MAXIMUM	21.89	
SYMMETRY---VETA I = .21			
KURTOSIS---VETA II = 3.37			
COEF. OF VARIATION = 5.3%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
P	FPct	CumF	CumFPct	CENTIMETERS		P	FPct	CumF	CumFPct		
2	.09	2	.09	35.25 -	35.75						
2	.09	4	.18	35.75 -	36.25						
4	.18	8	.36	36.25 -	36.75						
7	.32	15	.68	36.75 -	37.25						
9	.41	24	1.09	37.25 -	37.75						
21	.95	45	2.04	37.75 -	38.25	1	.06	1	.06		
37	1.68	82	3.71	38.25 -	38.75	1	.06	2	.11		
50	2.26	132	5.98	38.75 -	39.25	2	.11	4	.23		
92	4.17	224	10.14	39.25 -	39.75	0	.00	4	.23		
111	5.03	335	15.17	39.75 -	40.25	7	.39	11	.62		
126	5.71	461	20.88	40.25 -	40.75	11	.62	22	1.24		
161	7.29	622	28.17	40.75 -	41.25	24	1.35	46	2.59		
174	7.88	796	36.05	41.25 -	41.75	19	1.07	65	3.66		
189	8.56	985	44.61	41.75 -	42.25	28	1.58	93	5.24		
199	9.01	1184	53.62	42.25 -	42.75	58	3.27	151	8.51		
196	8.88	1380	62.50	42.75 -	43.25	66	3.72	217	12.23		
188	8.51	1568	71.01	43.25 -	43.75	85	4.79	302	17.02		
157	7.11	1725	78.13	43.75 -	44.25	103	5.81	405	22.83		
132	5.98	1857	84.10	44.25 -	44.75	140	7.89	545	30.72		
99	4.48	1956	88.59	44.75 -	45.25	136	7.67	681	38.39		
74	3.35	2030	91.94	45.25 -	45.75	130	7.33	811	45.72		
61	2.76	2091	94.70	45.75 -	46.25	140	7.89	951	53.61		
37	1.68	2128	96.38	46.25 -	46.75	148	8.34	1099	61.95		
24	1.09	2152	97.46	46.75 -	47.25	133	7.50	1237	69.45		
23	1.04	2175	98.51	47.25 -	47.75	117	6.60	1349	76.04		
11	.50	2186	99.00	47.75 -	48.25	108	6.09	1457	82.13		
9	.41	2195	99.41	48.25 -	48.75	85	4.79	1542	86.92		
5	.23	2200	99.64	48.75 -	49.25	72	4.06	1614	90.98		
3	.14	2203	99.77	49.25 -	49.75	52	2.93	1666	93.91		
2	.09	2205	99.86	49.75 -	50.25	28	1.58	1694	95.49		
0	.00	2205	99.86	50.25 -	50.75	21	1.18	1715	96.67		
2	.09	2207	99.95	50.75 -	51.25	15	.85	1730	97.52		
0	.00	2207	99.95	51.25 -	51.75	12	.68	1742	98.70		
1	.05	2208	100.00	51.75 -	52.25	10	.56	1752	98.76		
				52.25 -	52.75	7	.35	1759	99.15		
				52.75 -	53.25	6	.34	1765	99.49		
				53.25 -	53.75	0	.00	1765	99.49		
				53.75 -	54.25	5	.28	1770	99.77		
				54.25 -	54.75	1	.06	1771	99.83		
				54.75 -	55.25	1	.06	1772	99.89		
				55.25 -	55.75	2	.11	1774	100.00		



## (D57) WAIST-BUTTOCK DROP (NATURAL INDENTATION)

The difference between the circumference of the waist at the level of its natural indentation and the torso circumference at the level of the maximum protrusion of the right buttock is calculated as follows: BUTTOCK CIRCUMFERENCE minus WAIST CIRCUMFERENCE (NATURAL INDENTATION).

THE PERCENTILES					
FEMALES			MALES		
CM	INCHES		CM	INCHES	
12.49	4.92	1ST	3.87	1.53	
14.26	5.61	2ND	5.21	2.05	
15.30	6.03	3RD	6.07	2.39	
16.63	6.55	5TH	7.24	2.85	
18.51	7.29	10TH	9.01	3.55	
19.69	7.75	15TH	10.17	4.00	
20.58	8.10	20TH	11.06	4.36	
21.33	8.40	25TH	11.81	4.65	
21.79	8.66	30TH	12.47	4.91	
22.59	8.89	35TH	13.05	5.14	
23.16	9.12	40TH	13.60	5.35	
23.70	9.33	45TH	14.12	5.56	
24.23	9.54	50TH	14.62	5.75	
24.76	9.75	55TH	15.10	5.95	
25.30	9.96	60TH	15.59	6.14	
25.85	10.18	65TH	16.08	6.33	
26.44	10.41	70TH	16.59	6.53	
27.08	10.66	75TH	17.13	6.75	
27.79	10.94	80TH	17.73	6.98	
28.63	11.27	85TH	18.42	7.25	
29.65	11.69	90TH	19.30	7.60	
31.28	12.31	95TH	20.65	8.13	
32.32	12.72	97TH	21.58	8.49	
33.08	13.02	98TH	22.30	8.78	
34.27	13.49	99TH	23.53	9.26	

# **WAIST-BUTTOCK DROP (NATURAL INDENTATION)**

<b>FEMALES</b>			
<u>CM</u>		<u>INCHES</u>	
24.14	MEAN VALUE	9.50	
.09	SE (MEAN)	.04	
4.45	STD DEVIATION	1.75	
.07	SE (STD DEV)	.03	
8.30	MINIMUM	3.27	
41.10	MAXIMUM	16.18	
SYMMETRY---VETA I		=	-.16
KURTOSIS---VETA II		=	3.44
COEF. OF VARIATION		=	18.4%
NUMBER OF SUBJECTS		=	2208

<b>MALES</b>			
<u>CM</u>		<u>INCHES</u>	
14.38	MEAN VALUE	5.66	
.10	SE (MEAN)	.04	
4.07	STD DEVIATION	1.60	
.07	SE (STD DEV)	.03	
-.20	MINIMUM	-.08	
26.70	MAXIMUM	10.51	
SYMMETRY---VETA I		=	-.31
KURTOSIS---VETA II		=	3.31
COEF. OF VARIATION		=	28.3%
NUMBER OF SUBJECTS		=	1774

<b>FREQUENCY TABLE</b>											
<b>FEMALES</b>											
<u>F</u>	<u>FPct</u>	<u>CumF</u>	<u>CumFPct</u>	<u>CENTIMETERS</u>				<u>F</u>	<u>FPct</u>	<u>CumF</u>	<u>CumFPct</u>
				-.45 -	.55						
				.55 -	1.55			3	.17	3	.17
				1.55 -	2.55			5	.28	8	.45
				2.55 -	3.55			2	.11	10	.56
				3.55 -	4.55			5	.28	15	.85
				4.55 -	5.55			10	.56	25	1.41
				5.55 -	6.55			13	.73	38	2.14
				6.55 -	7.55			33	1.86	71	4.00
				7.55 -	8.55			39	2.20	110	6.20
				8.55 -	9.55			47	2.65	157	8.85
				9.55 -	10.55			53	2.99	210	11.84
				10.55 -	11.55			80	4.51	290	16.35
				11.55 -	12.55			114	6.43	404	22.77
				12.55 -	13.55			137	7.72	541	30.50
				13.55 -	14.55			156	8.79	697	39.29
				14.55 -	15.55			173	9.75	870	49.04
				15.55 -	16.55			176	9.92	1046	58.96
				16.55 -	17.55			209	11.78	1255	70.74
				17.55 -	18.55			154	8.68	1409	79.43
				18.55 -	19.55			116	6.54	1525	85.96
				19.55 -	20.55			90	5.07	1615	91.04
				20.55 -	21.55			62	3.49	1677	94.53
				21.55 -	22.55			42	2.37	1719	96.90
				22.55 -	23.55			25	1.41	1744	98.31
				23.55 -	24.55			12	.68	1756	98.99
				24.55 -	25.55			12	.68	1768	99.66
				25.55 -	26.55			1	.06	1769	99.72
				26.55 -	27.55			4	.23	1773	99.94
				27.55 -	28.55			1	.06	1774	100.00
				28.55 -	29.55						
				29.55 -	30.55						
				30.55 -	31.55						
				31.55 -	32.55						
				32.55 -	33.55						
				33.55 -	34.55						
				34.55 -	35.55						
				35.55 -	36.55						
				36.55 -	37.55						
				37.55 -	38.55						
				38.55 -	39.55						
				39.55 -	40.55						
				40.55 -	41.55						

## (D58) WAIST-BUTTOCK DROP (OMPHALION)

The difference between the circumference of the waist at the level of the navel (omphalion) and the torso circumference at the level of the maximum protrusion of the right buttock is calculated as follows: BUTTOCK CIRCUMFERENCE minus WAIST CIRCUMFERENCE (OMPHALION).

THE PERCENTILES					
FEMALES			MALES		
CM	INCHES		CM	INCHES	
2.55	1.00	1ST	.25	.10	
4.56	1.79	2ND	1.71	.67	
5.83	2.29	3RD	2.66	1.05	
7.53	2.96	5TH	3.96	1.56	
10.07	3.97	10TH	5.95	2.34	
11.72	4.62	15TH	7.28	2.86	
12.98	5.11	20TH	8.30	3.27	
14.04	5.53	25TH	9.18	3.61	
14.96	5.89	30TH	9.94	3.91	
15.79	6.21	35TH	10.63	4.19	
16.55	6.52	40TH	11.28	4.44	
17.27	6.80	45TH	11.88	4.68	
17.96	7.07	50TH	12.47	4.91	
18.64	7.34	55TH	13.05	5.14	
19.31	7.60	60TH	13.62	5.36	
19.98	7.87	65TH	14.19	5.59	
20.67	8.14	70TH	14.78	5.82	
21.40	8.43	75TH	15.41	6.07	
22.20	8.74	80TH	16.08	6.33	
23.10	9.09	85TH	16.83	6.63	
24.21	9.53	90TH	17.75	6.99	
25.84	10.17	95TH	19.04	7.50	
26.90	10.59	97TH	19.85	7.81	
27.70	10.90	98TH	20.44	8.05	
29.00	11.42	99TH	21.36	8.41	

# **WAIST-BUTTOCK DROP (OMPHALION)**

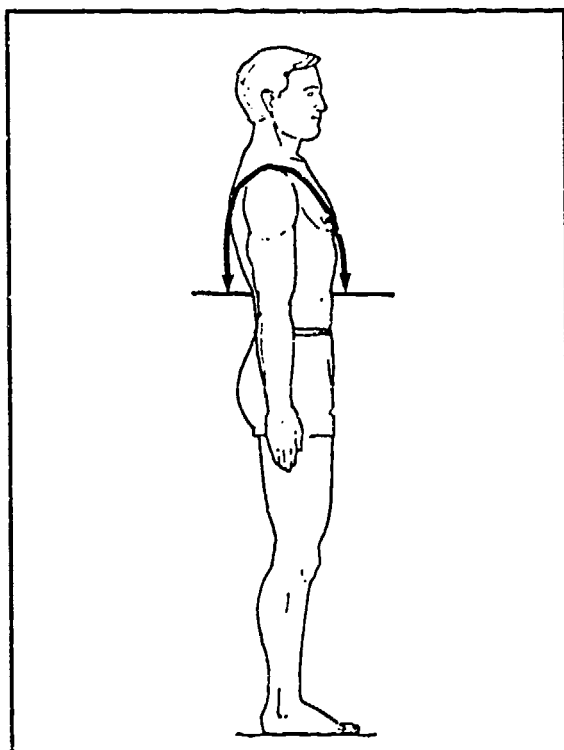
<b>FEMALES</b>		
<u>CM</u>		<u>INCHES</u>
17.50	MEAN VALUE	6.89
.12	SE(MEAN)	.05
5.58	STD DEVIATION	2.20
.08	SE(STD DEV)	.03
-5.50	MINIMUM	-2.17
34.00	MAXIMUM	13.39
SYMMETRY---VETA I = -.40		
KURTOSIS---VETA II = 3.29		
COEF. OF VARIATION = 31.9%		
NUMBER OF SUBJECTS = 2208		

<b>MALES</b>		
<u>CM</u>		<u>INCHES</u>
12.12	MEAN VALUE	4.77
.11	SE(MEAN)	.04
4.58	STD DEVIATION	1.80
.08	SE(STD DEV)	.03
-4.90	MINIMUM	-1.93
25.80	MAXIMUM	10.16
SYMMETRY---VETA I = -.37		
KURTOSIS---VETA II = 3.01		
COEF. OF VARIATION = 37.8%		
NUMBER OF SUBJECTS = 1774		

<b>FREQUENCY TABLE</b>									
<b>FEMALES</b>					<b>MALES</b>				
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>	F	FPct	CumF	CumFPct	
1	.05	1	.05	-6.45 - -5.45	1	.06	1	.06	
0	.00	1	.05	-5.45 - -4.45	1	.06	2	.11	
1	.05	2	.09	-4.45 - -3.45	1	.06	3	.17	
1	.05	3	.14	-3.45 - -2.45	1	.06	3	.17	
0	.00	3	.14	-2.45 - -1.45	2	.11	5	.28	
2	.09	5	.23	-1.45 - -.45	5	.28	10	.56	
3	.14	8	.36	-.45 - .55	12	.68	22	1.24	
8	.36	16	.72	.55 - 1.55	14	.79	36	2.03	
6	.27	24	1.09	1.55 - 2.55	9	.51	45	2.54	
14	.63	30	1.36	2.55 - 3.55	28	1.58	73	4.11	
15	.68	44	1.99	3.55 - 4.55	41	2.31	114	6.43	
19	.86	59	2.67	4.55 - 5.55	44	2.48	158	8.91	
29	1.31	78	3.53	5.55 - 6.55	64	3.61	222	12.51	
34	1.54	107	4.85	6.55 - 7.55	68	3.83	290	16.35	
56	2.54	141	6.39	7.55 - 8.55	86	4.85	376	21.20	
55	2.49	197	8.92	8.55 - 9.55	100	5.64	476	26.83	
67	3.03	252	11.41	9.55 - 10.55	126	7.10	602	33.93	
80	3.62	319	14.45	10.55 - 11.55	142	8.00	744	41.94	
103	4.66	399	18.07	11.55 - 12.55	143	8.06	887	50.00	
111	5.03	502	22.74	12.55 - 13.55	171	9.64	1058	59.64	
116	5.25	613	27.76	13.55 - 14.55	155	8.74	1213	68.38	
148	6.70	729	33.02	14.55 - 15.55	144	8.12	1357	76.49	
170	7.70	877	39.72	15.55 - 16.55	125	7.05	1482	83.54	
156	7.07	1047	47.42	16.55 - 17.55	102	5.75	1584	89.29	
179	8.11	1203	54.48	17.55 - 18.55	69	3.89	1653	93.18	
139	6.30	1382	62.59	18.55 - 19.55	56	3.16	1709	96.34	
153	6.93	1521	68.89	19.55 - 20.55	30	1.69	1739	98.03	
141	6.39	1674	75.82	20.55 - 21.55	18	1.01	1757	99.04	
118	5.34	1815	82.20	21.55 - 22.55	12	.68	1769	99.72	
83	3.76	1933	87.55	22.55 - 23.55	2	.11	1771	99.83	
72	3.26	2016	91.30	23.55 - 24.55	2	.11	1773	99.94	
48	2.17	2088	94.57	24.55 - 25.55	0	.00	1773	99.94	
24	1.09	2136	96.74	25.55 - 26.55	1	.06	1774	100.00	
19	.86	2160	97.83	26.55 - 27.55					
13	.59	2179	98.69	27.55 - 28.55					
4	.18	2192	99.28	28.55 - 29.55					
2	.09	2196	99.46	29.55 - 30.55					
7	.32	2198	99.55	30.55 - 31.55					
1	.05	2205	99.86	31.55 - 32.55					
2	.09	2206	99.91	32.55 - 33.55					
		2208	100.00	33.55 - 34.55					

## (D59) WAIST-WAIST (NATURAL INDENTATION) OVER SHOULDER

The vertical circumference of the upper torso between the front of the waist at its natural indentation passing up over the right nipple on men or the right bustpoint on women, over the shoulder and down the back to the waist at the level of its natural indentation is calculated as follows: VERTICAL TRUNK CIRCUMFERENCE (USA) minus CROTCH LENGTH (NATURAL INDENTATION).



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
66.47	26.17	1ST	75.32	29.65	
67.76	26.68	2ND	76.82	30.25	
68.58	27.00	3RD	77.73	30.60	
69.67	27.43	5TH	78.90	31.06	
71.36	28.09	10TH	80.62	31.74	
72.50	28.54	15TH	81.74	32.18	
73.41	28.90	20TH	82.62	32.53	
74.20	29.21	25TH	83.37	32.82	
74.91	29.49	30TH	84.04	33.09	
75.57	29.75	35TH	84.67	33.33	
76.20	30.00	40TH	85.26	33.57	
76.82	30.24	45TH	85.84	33.80	
77.43	30.48	50TH	86.42	34.02	
78.05	30.73	55TH	87.00	34.25	
78.68	30.98	60TH	87.60	34.49	
79.34	31.24	65TH	88.22	34.73	
80.05	31.51	70TH	88.82	34.99	
80.82	31.82	75TH	89.60	35.28	
81.69	32.16	80TH	90.42	35.60	
82.71	32.56	85TH	91.38	35.98	
84.03	33.08	90TH	92.61	36.46	
86.03	33.87	95TH	94.46	37.19	
87.35	34.39	97TH	95.66	37.66	
88.34	34.78	98TH	96.54	38.01	
89.92	35.40	99TH	97.90	38.54	

# WAIST-WAIST (NATURAL INDENTATION) OVER SHOULDER

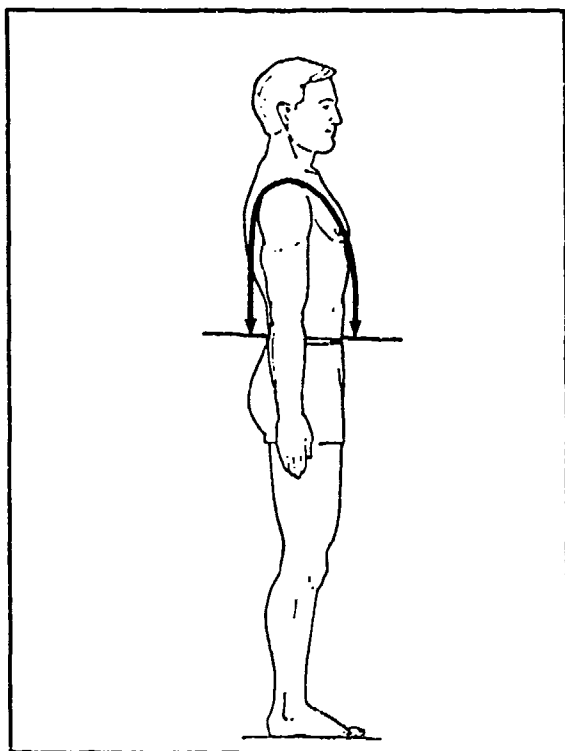
FEMALES			
CM		INCHES	
77.59	MEAN VALUE	30.55	
.11	SE(MEAN)	.04	
4.95	STD DEVIATION	1.95	
.07	SE(STD DEV)	.03	
58.90	MINIMUM	23.19	
97.30	MAXIMUM	38.31	
SYMMETRY---VETA I = .16			
KURTOSIS---VETA II = 3.12			
COEF. OF VARIATION = 6.4%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
86.51	MEAN VALUE	34.06	
.11	SE(MEAN)	.04	
4.70	STD DEVIATION	1.85	
.08	SE(STD DEV)	.03	
71.60	MINIMUM	28.19	
105.60	MAXIMUM	41.57	
SYMMETRY---VETA I = .10			
KURTOSIS---VETA II = 3.14			
COEF. OF VARIATION = 5.4%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES					MALES						
F	FPct	CumF	CumFPct	CENTIMETERS	F	FPct	CumF	CumFPct			
1	.05	1	.05	58.55 - 59.55							
0	.00	1	.05	59.55 - 60.55							
0	.00	1	.05	60.55 - 61.55							
0	.00	1	.05	61.55 - 62.55							
1	.05	2	.09	62.55 - 63.55							
2	.09	4	.18	63.55 - 64.55							
8	.36	12	.54	64.55 - 65.55							
12	.54	24	1.09	65.55 - 66.55							
15	.68	39	1.77	66.55 - 67.55							
27	1.22	66	2.99	67.55 - 68.55							
41	1.86	107	4.85	68.55 - 69.55							
53	2.40	160	7.25	69.55 - 70.55							
72	3.26	232	10.51	70.55 - 71.55							
102	4.62	334	15.13	71.55 - 72.55	2	.11	2	.11			
127	5.75	461	20.88	72.55 - 73.55	3	.17	5	.28			
133	6.02	594	26.90	73.55 - 74.55	5	.28	10	.56			
169	7.65	763	34.56	74.55 - 75.55	7	.39	17	.96			
182	8.24	945	42.80	75.55 - 76.55	16	.90	33	1.86			
172	7.79	1117	50.59	76.55 - 77.55	17	.96	50	2.82			
185	8.38	1302	58.97	77.55 - 78.55	23	1.30	73	4.11			
166	7.52	1468	66.49	78.55 - 79.55	33	1.86	106	5.98			
151	6.84	1619	73.32	79.55 - 80.55	65	3.66	171	9.64			
135	6.11	1754	79.44	80.55 - 81.55	81	4.57	252	14.21			
107	4.85	1861	84.28	81.55 - 82.55	101	5.69	353	19.90			
90	4.08	1951	88.36	82.55 - 83.55	114	6.43	467	26.32			
68	3.08	2019	91.44	83.55 - 84.55	147	8.29	614	34.61			
55	2.49	2074	93.93	84.55 - 85.55	142	8.00	756	42.62			
46	2.08	2120	96.01	85.55 - 86.55	146	8.23	902	50.85			
27	1.22	2147	97.24	86.55 - 87.55	160	9.02	1062	59.86			
22	1.00	2169	98.23	87.55 - 88.55	133	7.50	1195	67.36			
13	.59	2182	98.82	88.55 - 89.55	132	7.44	1327	74.80			
12	.54	2194	99.37	89.55 - 90.55	105	5.92	1432	80.72			
8	.36	2202	99.73	90.55 - 91.55	93	5.24	1525	85.96			
1	.05	2203	99.77	91.55 - 92.55	72	4.06	1597	90.02			
1	.05	2204	99.82	92.55 - 93.55	52	2.93	1649	92.95			
1	.05	2205	99.86	93.55 - 94.55	44	2.48	1693	95.43			
1	.05	2206	99.91	94.55 - 95.55	26	1.47	1719	96.90			
1	.05	2207	99.95	95.55 - 96.55	20	1.13	1739	98.03			
1	.05	2208	100.00	96.55 - 97.55	13	.73	1752	98.76			
				97.55 - 98.55	11	.62	1763	99.38			
				98.55 - 99.55	5	.28	1768	99.66			
				99.55 - 100.55	2	.11	1770	99.77			
				100.55 - 101.55	2	.11	1772	99.89			
				101.55 - 102.55	0	.00	1772	99.89			
				102.55 - 103.55	1	.06	1773	99.94			
				103.55 - 104.55	0	.00	1773	99.94			
				104.55 - 105.55	0	.00	1773	99.94			
				105.55 - 106.55	1	.06	1774	100.00			

## (D60) WAIST-WAIST (OMPHALION) OVER SHOULDER

The vertical circumference of the upper torso between the front of the waist at the navel (omphalion) passing up over the right nipple on men or the right bustpoint on women, over the shoulder and down the back to the waist at the level of the navel is calculated as follows: VERTICAL TRUNK CIRCUMFERENCE (USA) minus CROTCH LENGTH (OMPHALION).



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
82.07	32.31	1ST	86.75	34.15	
83.12	32.73	2ND	88.41	34.81	
83.82	33.00	3RD	89.42	35.20	
84.78	33.38	5TH	90.73	35.72	
86.32	33.98	10TH	92.65	36.48	
87.38	34.40	15TH	93.89	36.97	
88.24	34.74	20TH	94.86	37.35	
88.99	35.04	25TH	95.68	37.67	
89.67	35.30	30TH	96.42	37.96	
90.31	35.55	35TH	97.10	38.23	
90.92	35.80	40TH	97.75	38.48	
91.52	36.03	45TH	98.38	38.73	
92.11	36.27	50TH	99.00	38.98	
92.72	36.50	55TH	99.64	39.23	
93.33	36.75	60TH	100.29	39.48	
93.98	37.00	65TH	100.97	39.75	
94.67	37.27	70TH	101.70	40.04	
95.43	37.57	75TH	102.51	40.36	
96.29	37.91	80TH	103.44	40.73	
97.31	38.31	85TH	104.56	41.16	
98.64	38.83	90TH	106.03	41.75	
100.70	39.64	95TH	108.37	42.66	
102.10	40.20	97TH	109.99	43.30	
103.17	40.62	98TH	111.24	43.80	
104.92	41.31	99TH	113.32	44.61	

# WAIST-WAIST (OMPHALION) OVER SHOULDER

## FEMALES

<u>CM</u>		<u>INCHES</u>
92.35	MEAN VALUE	36.36
.10	SE (MEAN)	.04
4.84	STD DEVIATION	1.91
.07	SE (STD DEV)	.03
78.40	MINIMUM	30.87
111.10	MAXIMUM	43.74

SYMMETRY---VETA I = .31  
 KURTOSIS---VETA II = 3.18  
 COEF. OF VARIATION = 5.2%  
 NUMBER OF SUBJECTS = 2208

## MALES

<u>CM</u>		<u>INCHES</u>
99.17	MEAN VALUE	39.05
.13	SE (MEAN)	.05
5.33	STD DEVIATION	2.10
.09	SE (STD DEV)	.04
82.10	MINIMUM	32.32
119.10	MAXIMUM	46.89

SYMMETRY---VETA I = .23  
 KURTOSIS---VETA II = 3.35  
 COEF. OF VARIATION = 5.4%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
1	.05	1	.05
3	.14	4	.18
0	.00	4	.18
11	.50	15	.68
15	.68	30	1.36
28	1.27	58	2.63
42	1.90	100	4.53
55	2.49	155	7.02
82	3.71	237	10.73
122	5.53	359	16.26
130	5.89	489	22.15
156	7.07	645	29.21
169	7.65	814	36.87
175	7.93	989	44.79
208	9.42	1197	54.21
156	7.07	1353	61.28
177	8.02	1530	69.29
144	6.52	1674	75.82
122	5.53	1796	81.34
104	4.71	1900	86.05
83	3.76	1983	89.81
59	2.67	2042	92.48
55	2.49	2097	94.97
29	1.31	2126	96.29
25	1.13	2151	97.42
22	1.00	2173	98.41
11	.50	2184	98.91
4	.18	2188	99.09
10	.45	2198	99.55
4	.18	2202	99.73
1	.05	2203	99.77
2	.09	2205	99.86
2	.09	2207	99.95
1	.05	2208	100.00

<u>CENTIMETERS</u>
77.55 - 78.55
78.55 - 79.55
79.55 - 80.55
80.55 - 81.55
81.55 - 82.55
82.55 - 83.55
83.55 - 84.55
84.55 - 85.55
85.55 - 86.55
86.55 - 87.55
87.55 - 88.55
88.55 - 89.55
89.55 - 90.55
90.55 - 91.55
91.55 - 92.55
92.55 - 93.55
93.55 - 94.55
94.55 - 95.55
95.55 - 96.55
96.55 - 97.55
97.55 - 98.55
98.55 - 99.55
99.55 - 100.55
100.55 - 101.55
101.55 - 102.55
102.55 - 103.55
103.55 - 104.55
104.55 - 105.55
105.55 - 106.55
106.55 - 107.55
107.55 - 108.55
108.55 - 109.55
109.55 - 110.55
110.55 - 111.55
111.55 - 112.55
112.55 - 113.55
113.55 - 114.55
114.55 - 115.55
115.55 - 116.55
116.55 - 117.55
117.55 - 118.55
118.55 - 119.55

### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
1	.06	2	.11
1	.06	3	.17
2	.11	5	.28
10	.56	15	.85
10	.56	25	1.41
10	.56	35	1.97
19	1.07	54	3.04
25	1.41	79	4.45
49	2.76	128	7.22
56	3.16	184	10.37
57	3.21	241	13.59
90	5.07	331	18.66
108	6.09	439	24.75
121	6.82	560	31.57
112	6.31	672	37.88
142	8.00	814	45.89
147	8.29	961	54.17
126	7.10	1087	61.27
127	7.16	1214	68.43
129	7.27	1343	75.70
90	5.07	1433	80.78
84	4.74	1517	85.51
76	4.28	1593	89.80
38	2.14	1631	91.94
25	1.41	1656	93.35
34	1.92	1690	95.26
15	.85	1705	96.11
23	1.30	1728	97.41
15	.85	1743	98.25
9	.51	1752	98.76
8	.45	1760	99.21
2	.11	1762	99.32
6	.34	1768	99.66
4	.23	1772	99.89
0	.00	1772	99.89
1	.06	1773	99.94
1	.06	1774	100.00



## CHAPTER VI

### THE HEADBOARD MEASUREMENTS

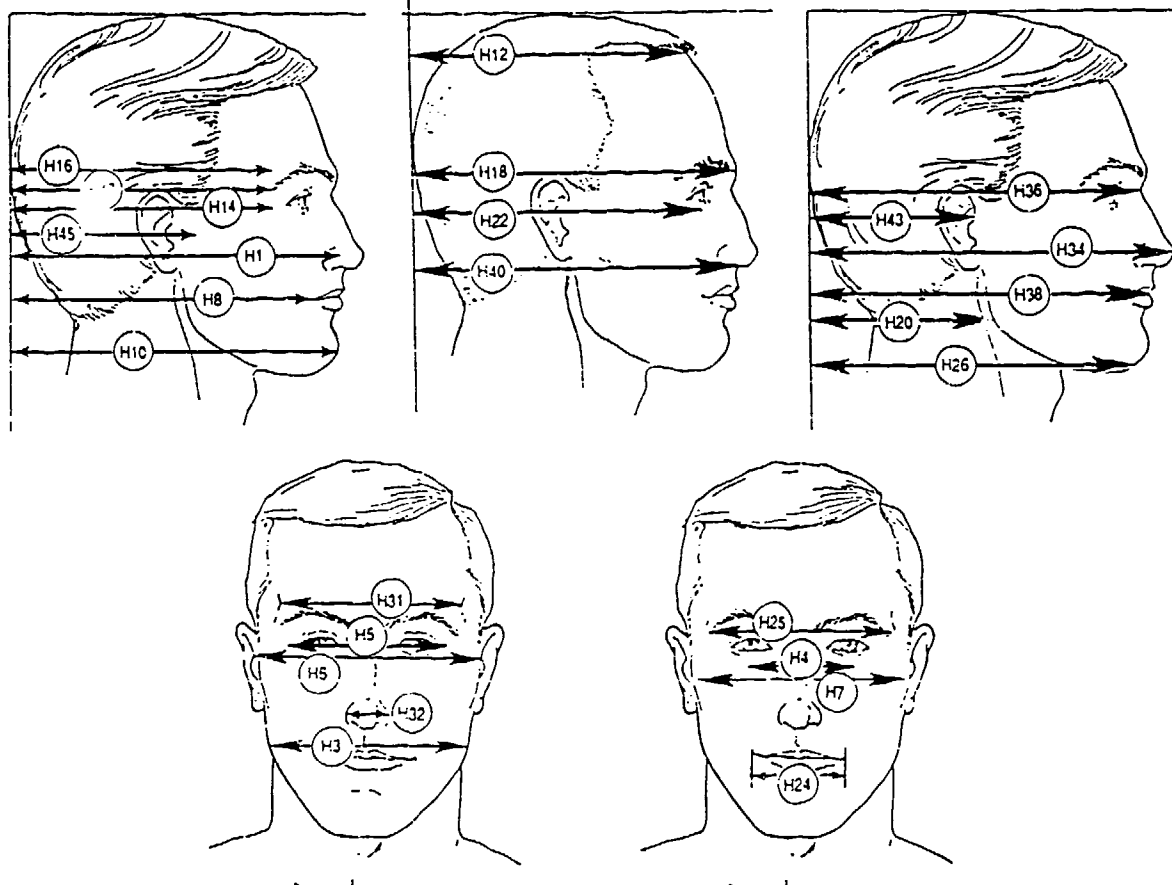
The head and face are perhaps the most difficult body parts to be adequately described by traditional linear measurement techniques because of the great variability of head and facial dimensions, their associated poor correlations, and the difficulty of maintaining the subject's head in the required position. A special automated headboard device (AHD) for measuring three-dimensional coordinates of landmark locations on the head and face was developed for use in the 1987-1988 survey.<sup>8</sup> The device was programmed to locate 26 head and face landmarks in three-dimensional space. The points were selected on the basis of their usefulness in the design and construction of helmets, respirators, goggles, and other personal protective equipment.

Sixteen head and face dimensions were measured by traditional means and are reported in Chapter III. These are supplemented by the data obtained from the AHD, in which points were located in three-dimensional space by the simultaneous determination of distances along the Z-axis (height), the X-axis (depth), and the Y-axis (breadth). For ease of reporting, and to facilitate comparison with previously reported headboard data, these headboard data are given here for each axis separately, using the same standard statistics as are used in reporting the standard and derived dimensions.

A visual index for 48 head and face dimensions appears on the following pages. Data pages which include measurement descriptions, summary statistics, and percentile and frequency tables follow.

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# VISUAL INDEX - HEAD MEASUREMENTS



(H1) ALARE-BACK OF HEAD

(H3) BIGONIAL BREADTH

(H4) BIINFRAORBITALE BREADTH

(H5) BIOCLAR BREADTH, MAXIMUM

(H6) BITRAGON BREADTH

(H7) BIZYGOMATIC BREADTH

(H8) CHEILION-BACK OF HEAD

(H10) CHIN-BACK OF HEAD

(H12) CRINION-BACK OF HEAD

(H14) ECTOORBITALE-BACK OF HEAD

(H16) FRONTOTEMPORALE-BACK OF HEAD

(H18) GLABELLA-BACK OF HEAD

(H20) GONION-BACK OF HEAD

(H22) INFRAORBITALE-BACK OF HEAD

(H24) LIP LENGTH

(H25) MAXIMUM FRONTAL BREADTH

(H26) MENTON-BACK OF HEAD

(H31) MINIMUM FRONTAL BREADTH

(H32) NOSE BREADTH

(H34) PRONASALE-BACK OF HEAD

(H36) SELLION-BACK OF HEAD

(H38) STOMION-BACK OF HEAD

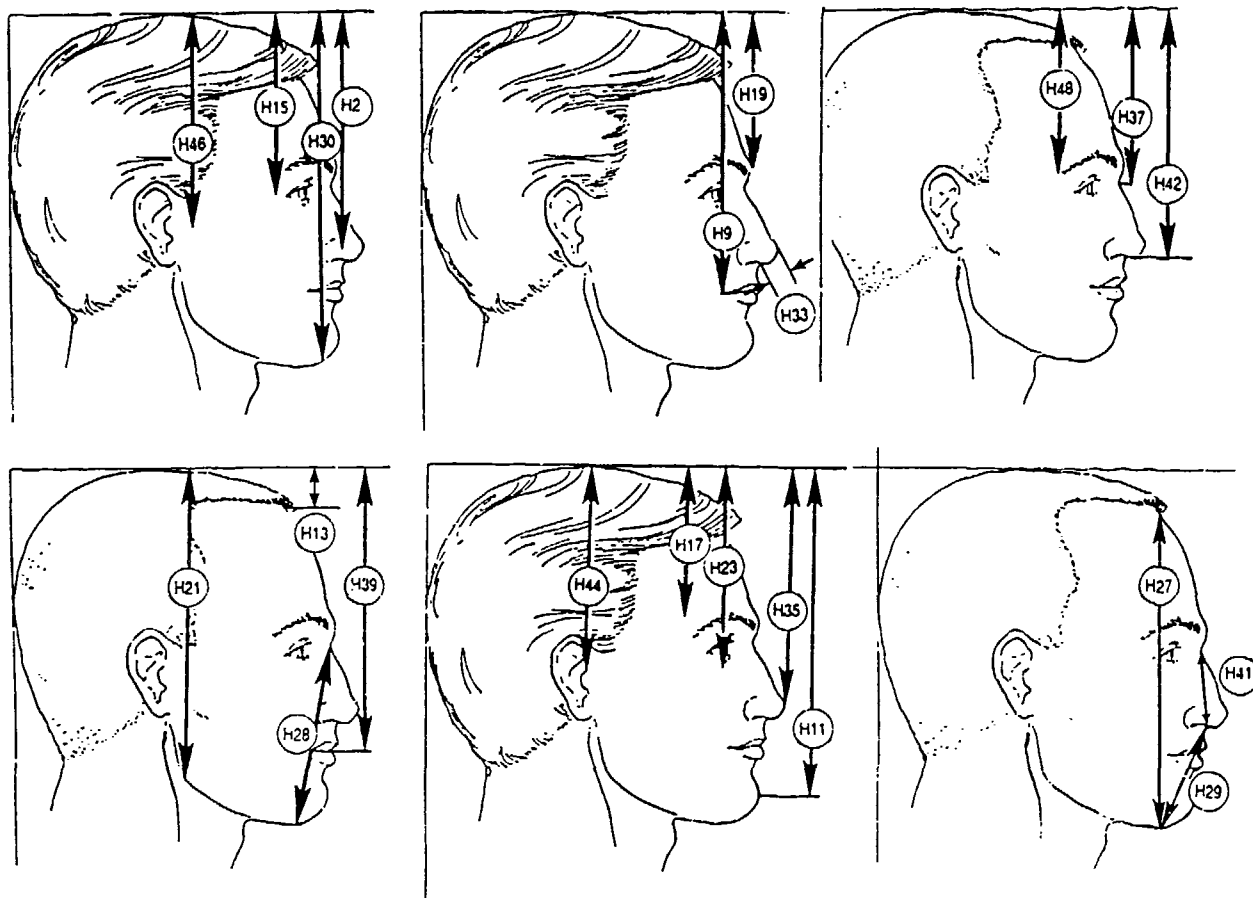
(H40) SUBNASALE-BACK OF HEAD

(H43) TRAGON-BACK OF HEAD

(H45) ZYGION-BACK OF HEAD

(H47) ZYGOFRONTALE-BACK OF HEAD

# VISUAL INDEX - HEAD MEASUREMENTS (Continued)



(H2) ALARE-TOP OF HEAD

(H9) CHEILION-TOP OF HEAD

(H11) CHIN-TOP OF HEAD

(H13) CRINION-TOP OF HEAD

(H15) ECTOORBITALE-TOP OF HEAD

(H17) FRONTOTEMPORALE-TOP OF HEAD

(H19) GLABELLA-TOP OF HEAD

(H21) GONION-TOP OF HEAD

(H23) INFRAORBITALE-TOP OF HEAD

(H27) MENTON-CRINION LENGTH

(H28) MENTON-SELLION LENGTH

(H29) MENTON SUBNASALE LENGTH

(H30) MENTON-TOP OF HEAD

(H33) NOSE PROTRUSION

(H35) PRONASALE-TOP OF HEAD

(H37) SELLION-TOP OF HEAD

(H39) STOMION-TOP OF HEAD

(H41) SUBNASALE-SELLION LENGTH

(H42) SUBNASALE-TOP OF HEAD

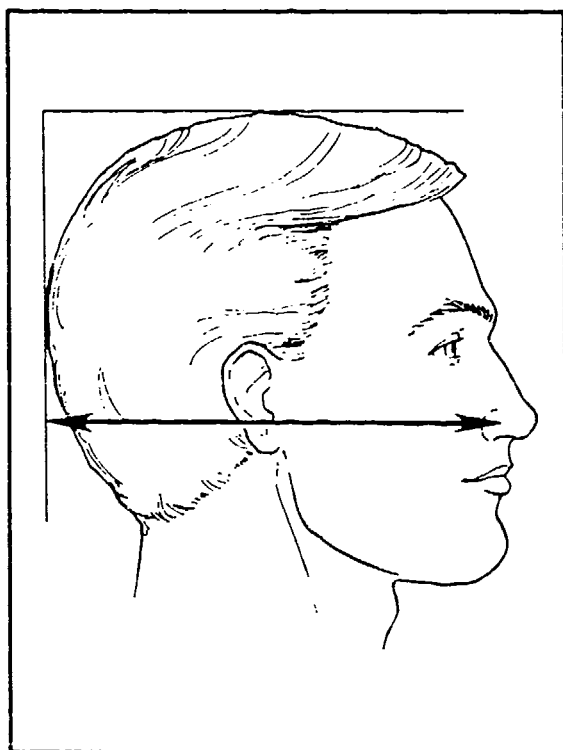
(H44) TRAGION-TOP OF HEAD

(H46) ZYGION-TOP OF HEAD

(H48) ZYGOFRONTALE-TOP OF HEAD

## (H1) ALARE-BACK OF HEAD

The horizontal distance between the alare landmark on the side of the nostrils and the vertical plane tangent to the back of the head is measured.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
17.37	6.84	1ST	18.08	7.12	
17.58	6.92	2ND	18.30	7.21	
17.71	6.97	3RD	18.45	7.26	
17.88	7.04	5TH	18.65	7.34	
18.15	7.15	10TH	18.96	7.46	
18.34	7.22	15TH	19.16	7.54	
18.48	7.28	20TH	19.32	7.61	
18.61	7.33	25TH	19.46	7.66	
18.72	7.37	30TH	19.58	7.71	
18.83	7.41	35TH	19.69	7.75	
18.93	7.45	40TH	19.80	7.79	
19.03	7.49	45TH	19.90	7.83	
19.13	7.53	50TH	19.99	7.87	
19.22	7.57	55TH	20.09	7.91	
19.32	7.61	60TH	20.19	7.95	
19.43	7.65	65TH	20.29	7.99	
19.54	7.69	70TH	20.39	8.03	
19.65	7.74	75TH	20.51	8.07	
19.79	7.79	80TH	20.63	8.12	
19.94	7.85	85TH	20.78	8.18	
20.14	7.93	90TH	20.97	8.25	
20.42	8.04	95TH	21.25	8.37	
20.61	8.11	97TH	21.45	8.45	
20.74	8.17	98TH	21.61	8.51	
20.95	8.25	99TH	21.86	8.61	

# ALARE-BACK OF HEAD

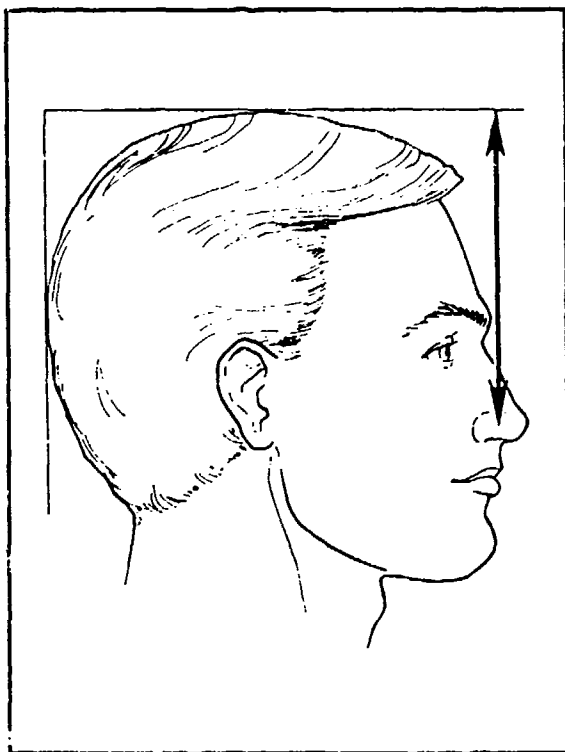
FEMALES			
CM		INCHES	
19.13	MEAN VALUE	7.53	
.02	SE(MEAN)	.00	
.77	STD DEVIATION	.30	
.00	SE(STD DEV)	.00	
16.17	MINIMUM	6.37	
21.48	MAXIMUM	8.46	
SYMMETRY---VETA I = -.02			
KURTOSIS---VETA II = 3.13			
COEF. OF VARIATION = 4.0%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
19.98	MEAN VALUE	7.87	
.02	SE(MEAN)	.00	
.79	STD DEVIATION	.31	
.00	SE(STD DEV)	.00	
17.17	MINIMUM	6.76	
22.62	MAXIMUM	8.91	
SYMMETRY---VETA I = -.03			
KURTOSIS---VETA II = 3.16			
COEF. OF VARIATION = 4.0%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
2	.09	2	.09	16.05	- 16.25						
2	.09	4	.18	16.25	- 16.45						
1	.05	5	.23	16.45	- 16.65						
2	.09	7	.32	16.65	- 16.85						
3	.14	10	.45	16.85	- 17.05						
7	.32	17	.77	17.05	- 17.25	1	.06	1	.06		
10	.45	27	1.22	17.25	- 17.45	2	.11	3	.17		
25	1.13	52	2.36	17.45	- 17.65	0	.00	3	.17		
57	2.58	109	4.94	17.65	- 17.85	3	.17	6	.34		
57	2.58	166	7.52	17.85	- 18.05	7	.39	13	.73		
109	4.94	275	12.45	18.05	- 18.25	15	.85	28	1.58		
139	6.30	414	18.75	18.25	- 18.45	25	1.41	53	2.99		
166	7.52	580	26.27	18.45	- 18.65	33	1.86	86	4.85		
193	8.74	773	35.01	18.65	- 18.85	48	2.71	134	7.55		
231	10.46	1004	45.47	18.85	- 19.05	78	4.40	212	11.95		
248	11.23	1252	56.70	19.05	- 19.25	100	5.64	312	17.59		
205	9.28	1457	65.99	19.25	- 19.45	125	7.05	437	24.63		
196	8.88	1653	74.86	19.45	- 19.65	158	8.91	595	33.54		
185	8.38	1838	83.24	19.65	- 19.85	168	9.47	763	43.01		
105	4.76	1943	88.00	19.85	- 20.05	164	9.24	927	52.25		
99	4.48	2042	92.48	20.05	- 20.25	181	10.20	1108	62.46		
58	2.63	2100	95.11	20.25	- 20.45	193	10.88	1301	73.34		
46	2.08	2146	97.19	20.45	- 20.65	122	6.88	1423	80.21		
27	1.22	2173	98.41	20.65	- 20.85	120	6.76	1543	86.98		
22	1.00	2195	99.41	20.85	- 21.05	83	4.68	1626	91.66		
9	.41	2204	99.82	21.05	- 21.25	57	3.21	1683	94.87		
3	.14	2207	99.95	21.25	- 21.45	39	2.20	1722	97.07		
1	.05	2208	100.00	21.45	- 21.65	21	1.18	1743	98.25		
				21.65	- 21.85	12	.68	1755	98.93		
				21.85	- 22.05	9	.51	1764	99.44		
				22.05	- 22.25	1	.06	1765	99.49		
				22.25	- 22.45	6	.34	1771	99.83		
				22.45	- 22.65	3	.17	1774	100.00		

## (H2) ALARE-TOP OF HEAD

The vertical distance between the alare landmark on the side of the nostril and the horizontal plane tangent to the top of the head is measured.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
12.96	5.10	1ST	13.84	5.45	
13.19	5.19	2ND	14.03	5.52	
13.33	5.25	3RD	14.15	5.57	
13.51	5.32	5TH	14.32	5.64	
13.77	5.42	10TH	14.59	5.74	
13.94	5.49	15TH	14.77	5.81	
14.07	5.54	20TH	14.91	5.87	
14.29	5.59	25TH	15.04	5.92	
14.29	5.63	30TH	15.15	5.96	
14.38	5.66	35TH	15.25	6.00	
14.47	5.70	40TH	15.35	6.04	
14.56	5.73	45TH	15.44	6.08	
14.65	5.77	50TH	15.54	6.12	
14.73	5.80	55TH	15.63	6.15	
14.82	5.84	60TH	15.72	6.19	
14.92	5.87	65TH	15.82	6.23	
15.01	5.91	70TH	15.92	6.27	
15.12	5.95	75TH	16.03	6.31	
15.24	6.00	80TH	16.16	6.36	
15.38	6.06	85TH	16.30	6.42	
15.56	6.13	90TH	16.48	6.49	
15.82	6.23	95TH	16.76	6.60	
15.99	6.30	97TH	16.94	6.67	
16.11	6.34	98TH	17.07	6.72	
16.30	6.42	99TH	17.29	6.81	

# ALARE-TOP OF HEAD

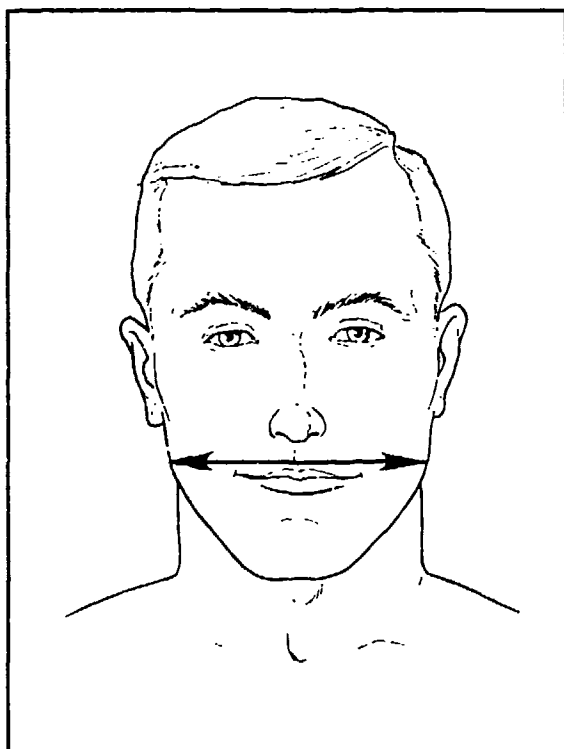
FEMALES			
<u>CM</u>		<u>INCHES</u>	
14.65	MEAN VALUE	5.77	
.00	SE(MEAN)	.00	
.70	STD DEVIATION	.28	
.00	SE(STD DEV)	.00	
12.40	MINIMUM	4.88	
17.14	MAXIMUM	6.75	
SYMMETRY---VETA I		=	.00
KURTOSIS---VETA II		=	3.12
COEF. OF VARIATION		=	4.8%
NUMBER OF SUBJECTS		=	2208

MALES			
<u>CM</u>		<u>INCHES</u>	
15.54	MEAN VALUE	6.12	
.02	SE(MEAN)	.00	
.74	STD DEVIATION	.29	
.00	SE(STD DEV)	.00	
13.16	MINIMUM	5.18	
18.16	MAXIMUM	7.15	
SYMMETRY---VETA I		=	.05
KURTOSIS---VETA II		=	3.04
COEF. OF VARIATION		=	4.8%
NUMBER OF SUBJECTS		=	1774

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>		F	FPct	CumF	CumFPct		
4	.18	4	.18	12.25	- 12.45						
5	.23	9	.41	12.45	- 12.65						
6	.27	15	.68	12.65	- 12.85						
13	.59	28	1.27	12.85	- 13.05						
20	.91	48	2.17	13.05	- 13.25	1	.06	1	.06		
55	2.49	103	4.66	13.25	- 13.45	4	.23	5	.28		
66	2.99	169	7.65	13.45	- 13.65	4	.23	9	.51		
90	4.08	259	11.73	13.65	- 13.85	6	.34	15	.85		
154	6.97	413	18.70	13.85	- 14.05	21	1.18	36	2.03		
195	8.83	608	27.54	14.05	- 14.25	32	1.80	68	3.83		
246	11.14	854	38.68	14.25	- 14.45	57	3.21	125	7.05		
248	11.23	1102	49.91	14.45	- 14.65	69	3.89	194	10.94		
245	11.10	1347	61.01	14.65	- 14.85	132	7.44	326	18.38		
256	11.59	1603	72.60	14.85	- 15.05	127	7.16	453	25.54		
184	8.33	1787	80.93	15.05	- 15.25	169	9.53	622	35.06		
128	5.80	1915	86.73	15.25	- 15.45	196	11.05	818	46.11		
115	5.21	2030	91.94	15.45	- 15.65	177	9.98	995	56.09		
74	3.35	2104	95.29	15.65	- 15.85	183	10.32	1178	66.40		
42	1.90	2146	97.19	15.85	- 16.05	155	8.74	1333	75.14		
38	1.72	2184	98.91	16.05	- 16.25	147	8.29	1480	83.43		
12	.54	2196	99.46	16.25	- 16.45	106	5.98	1586	89.40		
6	.27	2202	99.73	16.45	- 16.65	72	4.06	1658	93.46		
5	.23	2207	99.95	16.65	- 16.85	40	2.25	1698	95.72		
0	.00	2207	99.95	16.85	- 17.05	41	2.31	1739	98.03		
1	.05	2208	100.00	17.05	- 17.25	16	.90	1755	98.93		
				17.25	- 17.45	6	.34	1761	99.27		
				17.45	- 17.65	6	.34	1767	99.61		
				17.65	- 17.85	4	.23	1771	99.83		
				17.85	- 18.05	2	.11	1773	99.94		
				18.05	- 18.25	1	.06	1774	100.00		

### (H3) BIGONIAL BREADTH

The straight-line distance between the right and left gonion landmarks on the corners of the jaw is measured.



#### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
9.25	3.64	1ST	10.13	3.99	
9.43	3.71	2ND	10.35	4.07	
9.54	3.76	3RD	10.48	4.13	
9.69	3.82	5TH	10.65	4.19	
9.93	3.91	10TH	10.91	4.30	
10.09	3.97	15TH	11.09	4.37	
10.22	4.02	20TH	11.23	4.42	
10.34	4.07	25TH	11.35	4.47	
10.44	4.11	30TH	11.46	4.51	
10.53	4.15	35TH	11.57	4.55	
10.63	4.18	40TH	11.67	4.59	
10.71	4.22	45TH	11.76	4.63	
10.80	4.25	50TH	11.86	4.67	
10.89	4.29	55TH	11.96	4.71	
10.98	4.32	60TH	12.06	4.75	
11.08	4.36	65TH	12.17	4.79	
11.18	4.40	70TH	12.28	4.83	
11.29	4.44	75TH	12.40	4.88	
11.41	4.49	80TH	12.54	4.94	
11.56	4.55	85TH	12.71	5.00	
11.75	4.63	90TH	12.92	5.08	
12.03	4.74	95TH	13.22	5.21	
12.22	4.81	97TH	13.41	5.28	
12.36	4.86	98TH	13.55	5.34	
12.58	4.95	99TH	13.76	5.42	



# BIGONIAL BREADTH

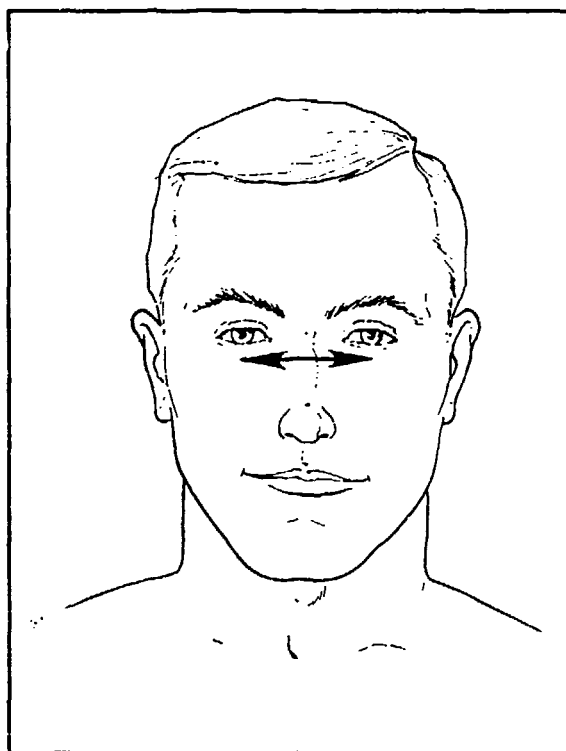
FEMALES			
CM		INCHES	
10.83	MEAN VALUE	4.26	
.02	SE (MEAN)	.00	
.71	STD DEVIATION	.28	
.00	SE (STD DEV)	.00	
8.67	MINIMUM	3.41	
14.42	MAXIMUM	5.68	
SYMMETRY---VETA I = .25			
KURTOSIS---VETA II = 3.40			
COEF. OF VARIATION = 6.6%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
11.89	MEAN VALUE	4.68	
.02	SE (MEAN)	.00	
.79	STD DEVIATION	.31	
.00	SE (STD DEV)	.00	
8.78	MINIMUM	3.46	
15.43	MAXIMUM	6.07	
SYMMETRY---VETA I = .21			
KURTOSIS---VETA II = 3.44			
COEF. OF VARIATION = 6.6%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE															
FEMALES								MALES							
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct						
4	.18	4	.18	8.65 -	8.85	1	.06	1	.06						
4	.18	8	.36	8.85 -	9.05	0	.00	1	.06						
13	.59	21	.95	9.05 -	9.25	0	.00	1	.06						
31	1.40	52	2.36	9.25 -	9.45	0	.00	1	.06						
36	1.63	88	3.99	9.45 -	9.65	2	.11	3	.17						
81	3.67	169	7.65	9.65 -	9.85	5	.28	8	.45						
111	5.03	280	12.68	9.85 -	10.05	5	.28	13	.73						
163	7.38	443	20.06	10.05 -	10.25	17	.96	30	1.69						
214	9.69	657	29.76	10.25 -	10.45	24	1.35	54	3.04						
257	11.64	914	41.39	10.45 -	10.65	30	1.69	84	4.74						
269	12.18	1183	53.58	10.65 -	10.85	58	3.27	142	8.00						
227	10.28	1410	63.86	10.85 -	11.05	88	4.96	230	12.97						
205	9.28	1615	73.14	11.05 -	11.25	116	6.54	346	19.50						
174	7.88	1789	81.02	11.25 -	11.45	168	9.47	514	28.97						
139	6.30	1928	87.32	11.45 -	11.65	180	10.15	694	39.12						
106	4.80	2034	92.12	11.65 -	11.85	180	10.15	874	49.27						
74	3.35	2108	95.47	11.85 -	12.05	193	10.88	1067	60.15						
41	1.86	2149	97.33	12.05 -	12.25	142	8.00	1209	68.15						
27	1.22	2176	98.55	12.25 -	12.45	138	7.78	1347	75.93						
12	.54	2188	99.09	12.45 -	12.65	130	7.33	1477	83.26						
11	.50	2199	99.59	12.65 -	12.85	90	5.07	1567	88.33						
3	.14	2202	99.73	12.85 -	13.05	78	4.40	1645	92.73						
0	.00	2202	99.73	13.05 -	13.25	46	2.59	1691	95.32						
2	.09	2204	99.82	13.25 -	13.45	35	1.97	1726	97.29						
2	.09	2206	99.91	13.45 -	13.65	24	1.35	1750	98.65						
1	.05	2207	99.95	13.65 -	13.85	9	.51	1759	99.15						
0	.00	2207	99.95	13.85 -	14.05	5	.28	1764	99.44						
0	.00	2207	99.95	14.05 -	14.25	4	.23	1768	99.66						
1	.05	2208	100.00	14.25 -	14.45	1	.06	1769	99.72						
				14.45 -	14.65	1	.06	1770	99.77						
				14.65 -	14.85	1	.06	1771	99.83						
				14.85 -	15.05	1	.06	1772	99.89						
				15.05 -	15.25	1	.06	1773	99.94						
				15.25 -	15.45	1	.06	1774	100.00						

#### (H4) BIINFRAORBITALE BREADTH

The straight-line distance between the right and left infraorbitale landmarks on the bottom edge of the bony eye sockets under the eyes is measured.



##### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
5.56	2.19	1ST	5.73	2.26	
5.70	2.24	2ND	5.86	2.31	
5.79	2.28	3RD	5.94	2.34	
5.90	2.32	5TH	6.05	2.38	
6.08	2.39	10TH	6.22	2.45	
6.20	2.44	15TH	6.33	2.49	
6.29	2.48	20TH	6.42	2.53	
6.37	2.51	25TH	6.50	2.56	
6.45	2.54	30TH	6.57	2.59	
6.52	2.57	35TH	6.64	2.61	
6.58	2.59	40TH	6.70	2.64	
6.65	2.62	45TH	6.76	2.66	
6.71	2.64	50TH	6.83	2.69	
6.78	2.67	55TH	6.89	2.71	
6.84	2.69	60TH	6.95	2.74	
6.91	2.72	65TH	7.02	2.76	
6.98	2.75	70TH	7.09	2.79	
7.06	2.78	75TH	7.17	2.82	
7.15	2.82	80TH	7.26	2.86	
7.26	2.86	85TH	7.37	2.90	
7.39	2.91	90TH	7.51	2.96	
7.58	2.99	95TH	7.72	3.04	
7.71	3.03	97TH	7.86	3.10	
7.80	3.07	98TH	7.97	3.14	
7.94	3.13	99TH	8.13	3.20	

# BIINFRAORBITALE BREADTH

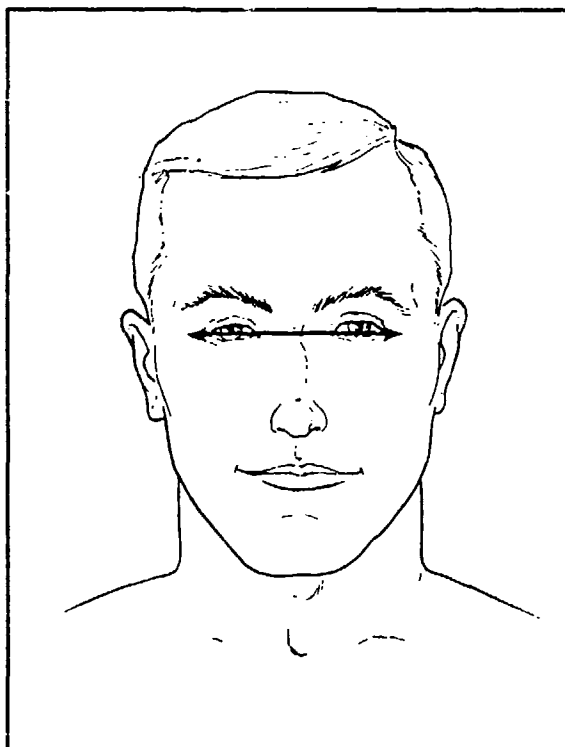
FEMALES			
CM		INCHES	
6.72	MEAN VALUE	2.65	
.00	SE (MEAN)	.00	
.51	STD DEVIATION	.20	
.00	SE (STD DEV)	.00	
4.93	MINIMUM	1.94	
8.54	MAXIMUM	3.36	
SYMMETRY---VETA I = .11			
KURTOSIS---VETA II = 2.98			
COEF. OF VARIATION = 7.6%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
6.85	MEAN VALUE	2.70	
.00	SE (MEAN)	.00	
.51	STD DEVIATION	.20	
.00	SE (STD DEV)	.00	
5.04	MINIMUM	1.98	
9.13	MAXIMUM	3.59	
SYMMETRY---VETA I = .27			
KURTOSIS---VETA II = 3.45			
COEF. OF VARIATION = 7.4%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE									
FEMALES					MALES				
F	FPct	CumF	CumFPct	CENTIMETERS	F	FPct	CumF	CumFPct	
1	.05	1	.05	4.85 - 4.95	1	.06	1	.06	
0	.00	1	.05	4.95 - 5.05	0	.00	1	.06	
1	.05	2	.09	5.05 - 5.15	0	.00	1	.06	
0	.00	2	.09	5.15 - 5.25	0	.00	1	.06	
1	.05	3	.14	5.25 - 5.35	2	.11	3	.17	
6	.27	9	.41	5.35 - 5.45	1	.06	4	.23	
10	.45	19	.86	5.45 - 5.55	1	.06	5	.28	
18	.82	37	1.68	5.55 - 5.65	6	.34	11	.62	
17	.77	54	2.45	5.65 - 5.75	8	.45	19	1.07	
28	1.27	82	3.71	5.75 - 5.85	15	.85	34	1.92	
56	2.54	138	6.25	5.85 - 5.95	26	1.47	60	3.38	
54	2.45	192	8.70	5.95 - 6.05	33	1.86	93	5.24	
76	3.44	268	12.14	6.05 - 6.15	40	2.25	133	7.50	
107	4.85	375	16.98	6.15 - 6.25	53	2.99	186	10.48	
141	6.39	516	23.37	6.25 - 6.35	68	3.83	254	14.32	
142	6.43	658	29.80	6.35 - 6.45	115	6.48	369	20.80	
168	7.61	826	37.41	6.45 - 6.55	121	6.82	490	27.62	
172	7.79	998	45.20	6.55 - 6.65	139	7.84	629	35.46	
162	7.34	1160	52.54	6.65 - 6.75	151	8.51	780	43.97	
167	7.56	1337	60.10	6.75 - 6.85	131	7.38	911	51.35	
161	7.29	1477	67.39	6.85 - 6.95	142	8.00	1053	59.36	
148	6.70	1625	74.09	6.95 - 7.05	132	7.44	1185	66.80	
125	5.66	1767	79.76	7.05 - 7.15	129	7.27	1314	74.07	
98	4.44	1859	84.19	7.15 - 7.25	100	5.64	1414	79.71	
91	4.12	1950	88.32	7.25 - 7.35	90	5.07	1504	84.78	
75	3.40	2025	91.71	7.35 - 7.45	64	3.61	1568	88.39	
64	2.90	2089	94.61	7.45 - 7.55	54	3.04	1622	91.43	
39	1.77	2128	96.38	7.55 - 7.65	37	2.09	1659	93.52	
21	.95	2149	97.33	7.65 - 7.75	27	1.52	1686	95.04	
25	1.13	2174	98.46	7.75 - 7.85	29	1.63	1715	96.67	
16	.72	2190	99.18	7.85 - 7.95	19	1.07	1734	97.75	
6	.27	2196	99.46	7.95 - 8.05	17	.96	1751	98.70	
5	.23	2201	99.68	8.05 - 8.15	9	.51	1760	99.21	
2	.09	2203	99.77	8.15 - 8.25	2	.11	1762	99.32	
1	.05	2204	99.82	8.25 - 8.35	4	.23	1766	99.55	
3	.14	2207	99.95	8.35 - 8.45	1	.06	1767	99.61	
1	.05	2208	100.00	8.45 - 8.55	2	.11	1769	99.72	
				8.55 - 8.65	3	.17	1772	99.89	
				8.65 - 8.75	1	.06	1773	99.94	
				8.75 - 8.85	0	.00	1773	99.94	
				8.85 - 8.95	0	.00	1773	99.94	
				8.95 - 9.05	0	.00	1773	99.94	
				9.05 - 9.15	1	.06	1774	100.00	

## (H5) BIOCLAR BREADTH, MAXIMUM

The straight-line distance between the right and left ectoorbitale landmarks just behind each bony eye socket at the level of the outer corners of the eyes is measured.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
10.76	4.24	1ST	10.98	4.32	
10.89	4.29	2ND	11.11	4.37	
10.97	4.32	3RD	11.20	4.41	
11.09	4.36	5TH	11.31	4.45	
11.27	4.44	10TH	11.50	4.53	
11.39	4.49	15TH	11.62	4.58	
11.49	4.52	20TH	11.72	4.62	
11.59	4.56	25TH	11.81	4.65	
11.66	4.59	30TH	11.89	4.68	
11.74	4.62	35TH	11.96	4.71	
11.81	4.65	40TH	12.03	4.74	
11.88	4.68	45TH	12.10	4.76	
11.95	4.70	50TH	12.16	4.79	
12.02	4.73	55TH	12.23	4.81	
12.09	4.76	60TH	12.30	4.84	
12.16	4.79	65TH	12.37	4.87	
12.24	4.82	70TH	12.44	4.90	
12.33	4.85	75TH	12.52	4.93	
12.43	4.89	80TH	12.62	4.97	
12.54	4.94	85TH	12.72	5.01	
12.68	4.99	90TH	12.87	5.07	
12.90	5.08	95TH	13.09	5.15	
13.04	5.13	97TH	13.25	5.22	
13.14	5.17	98TH	13.37	5.26	
13.30	5.24	99TH	13.57	5.34	

# BIOCLAR BREADTH, MAXIMUM

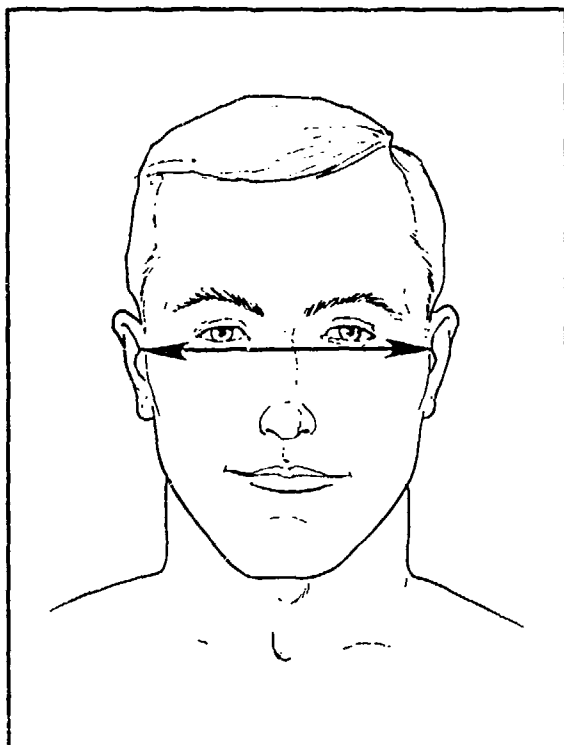
FEMALES			
CM		INCHES	
11.96	MEAN VALUE	4.71	
.00	SE (MEAN)	.00	
.55	STD DEVIATION	.22	
.00	SE (STD DEV)	.00	
10.17	MINIMUM	4.00	
14.36	MAXIMUM	5.65	
SYMMETRY---VETA I = .16			
KURTOSIS---VETA II = 3.09			
COEF. OF VARIATION = 4.6%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
12.18	MEAN VALUE	4.79	
.00	SE (MEAN)	.00	
.54	STD DEVIATION	.21	
.00	SE (STD DEV)	.00	
10.26	MINIMUM	4.04	
14.70	MAXIMUM	5.79	
SYMMETRY---VETA I = .19			
KURTOSIS---VETA II = 3.37			
COEF. OF VARIATION = 4.5%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
2	.09	2	.09	10.15 - 10.25		1	.06	1	.06		
1	.05	3	.14	10.25 - 10.35		1	.06	2	.11		
2	.09	5	.23	10.35 - 10.45		1	.06	3	.17		
3	.14	8	.36	10.45 - 10.55		2	.11	5	.28		
4	.18	12	.54	10.55 - 10.65		3	.17	8	.45		
9	.41	21	.95	10.65 - 10.75		3	.17	11	.62		
13	.59	34	1.54	10.75 - 10.85		6	.34	17	.96		
21	.95	55	2.49	10.85 - 10.95		10	.56	27	1.52		
28	1.27	83	3.76	10.95 - 11.05		11	.62	38	2.14		
56	2.54	139	6.30	11.05 - 11.15		27	1.52	65	3.66		
71	3.22	210	9.51	11.15 - 11.25		36	2.03	101	5.69		
70	3.17	280	12.68	11.25 - 11.35		50	2.82	151	8.51		
113	5.12	393	17.80	11.35 - 11.45		66	3.72	217	12.23		
108	4.89	501	22.69	11.45 - 11.55		75	4.23	292	16.46		
146	6.61	647	29.30	11.55 - 11.65		88	4.96	380	21.42		
144	6.52	791	35.82	11.65 - 11.75		94	5.30	474	26.72		
140	6.34	931	42.16	11.75 - 11.85		109	6.14	583	32.86		
156	7.07	1087	49.23	11.85 - 11.95		141	7.95	724	40.81		
156	7.07	1243	56.30	11.95 - 12.05		138	7.78	862	48.59		
157	7.11	1400	63.41	12.05 - 12.15		124	6.99	986	55.58		
142	6.43	1542	69.84	12.15 - 12.25		142	8.00	1128	63.59		
140	6.34	1682	76.18	12.25 - 12.35		122	6.88	1250	70.46		
120	5.43	1802	81.61	12.35 - 12.45		120	6.76	1370	77.23		
98	4.44	1900	86.05	12.45 - 12.55		68	3.83	1438	81.06		
65	2.94	1965	88.99	12.55 - 12.65		82	4.62	1520	85.68		
60	2.72	2025	91.71	12.65 - 12.75		62	3.49	1582	89.18		
56	2.54	2081	94.25	12.75 - 12.85		46	2.59	1628	91.77		
34	1.54	2115	95.79	12.85 - 12.95		42	2.37	1670	94.14		
25	1.13	2140	96.92	12.95 - 13.05		31	1.75	1701	95.89		
26	1.18	2166	98.10	13.05 - 13.15		21	1.18	1722	97.07		
17	.77	2183	98.87	13.15 - 13.25		13	.73	1735	97.80		
7	.32	2190	99.18	13.25 - 13.35		9	.51	1744	98.31		
5	.23	2195	99.41	13.35 - 13.45		10	.56	1754	98.87		
5	.23	2200	99.64	13.45 - 13.55		7	.39	1761	99.27		
4	.18	2204	99.82	13.55 - 13.65		5	.28	1766	99.55		
1	.05	2205	99.86	13.65 - 13.75		4	.23	1770	99.77		
1	.05	2206	99.91	13.75 - 13.85		2	.11	1772	99.89		
1	.05	2207	99.95	13.85 - 13.95		1	.06	1773	99.94		
0	.00	2207	99.95	13.95 - 14.05		0	.00	1773	99.94		
0	.00	2207	99.95	14.05 - 14.15		0	.00	1773	99.94		
0	.00	2207	99.95	14.15 - 14.25		0	.00	1773	99.94		
0	.00	2207	99.95	14.25 - 14.35		0	.00	1773	99.94		
1	.05	2208	100.00	14.35 - 14.45		0	.00	1773	99.94		
				14.45 - 14.55		0	.00	1773	99.94		
				14.55 - 14.65		0	.00	1773	99.94		
				14.65 - 14.75		1	.06	1774	100.00		

## (H6) BITRAGON BREADTH

The straight-line distance between the right and left tragon landmarks on the cartilaginous flaps in front of each earhole is measured.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
12.51	4.92	1ST	13.08	5.15	
12.62	4.97	2ND	13.25	5.22	
12.70	5.00	3RD	13.35	5.26	
12.81	5.04	5TH	13.50	5.31	
12.98	5.11	10TH	13.72	5.40	
13.11	5.16	15TH	13.87	5.46	
13.20	5.20	20TH	13.99	5.51	
13.29	5.23	25TH	14.09	5.55	
13.37	5.26	30TH	14.18	5.58	
13.44	5.29	35TH	14.26	5.61	
13.51	5.32	40TH	14.34	5.65	
13.57	5.34	45TH	14.41	5.67	
13.63	5.37	50TH	14.49	5.70	
13.70	5.39	55TH	14.56	5.73	
13.77	5.42	60TH	14.63	5.76	
13.83	5.45	65TH	14.71	5.79	
13.91	5.47	70TH	14.79	5.82	
13.98	5.51	75TH	14.88	5.86	
14.07	5.54	80TH	14.98	5.90	
14.18	5.58	85TH	15.09	5.94	
14.31	5.63	90TH	15.23	6.00	
14.52	5.72	95TH	15.45	6.08	
14.66	5.77	97TH	15.59	6.14	
14.77	5.82	98TH	15.70	6.18	
14.96	5.89	99TH	15.87	6.25	

# BITRAGION BREADTH

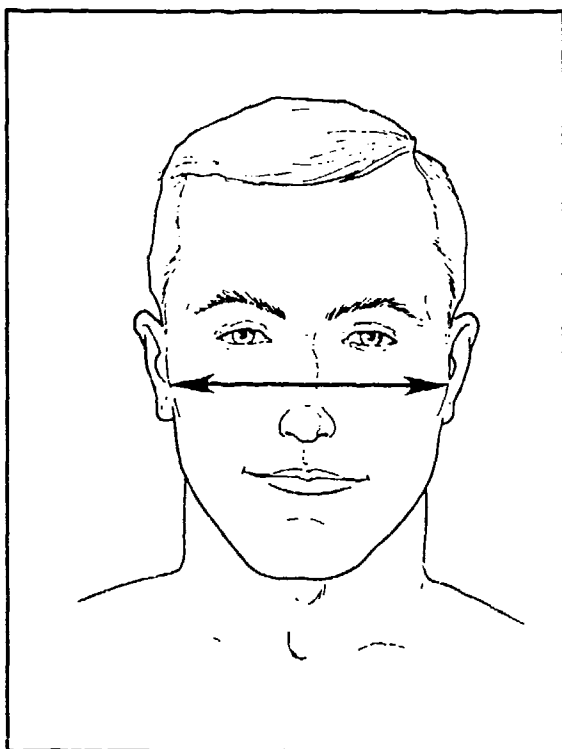
FEMALES			
CM		INCHES	
13.64	MEAN VALUE	5.37	
.00	SE(MEAN)	.00	
.52	STD DEVIATION	.21	
.00	SE(STD DEV)	.00	
11.48	MINIMUM	4.52	
15.69	MAXIMUM	6.18	
SYMMETRY---VETA I = .11			
KURTOSIS---VETA II = 3.33			
COEF. OF VARIATION = 3.8%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
14.48	MEAN VALUE	5.70	
.00	SE(MEAN)	.00	
.60	STD DEVIATION	.23	
.00	SE(STD DEV)	.00	
10.72	MINIMUM	4.22	
16.58	MAXIMUM	6.53	
SYMMETRY---VETA I = -.15			
KURTOSIS---VETA II = 3.88			
COEF. OF VARIATION = 4.1%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE									
FEMALES					MALES				
F	FPct	CumF	CumFPct	CENTIMETERS	F	FPct	CumF	CumFPct	
				10.65 - 10.85	1	.06	1	.06	
				10.85 - 11.05	0	.00	1	.06	
				11.05 - 11.25	0	.00	1	.06	
				11.25 - 11.45	0	.00	1	.06	
				11.45 - 11.65	0	.00	1	.06	
				11.65 - 11.85	0	.00	1	.06	
				11.85 - 12.05	0	.00	1	.06	
				12.05 - 12.25	0	.00	1	.06	
				12.25 - 12.45	2	.11	3	.17	
				12.45 - 12.65	1	.06	4	.23	
				12.65 - 12.85	4	.23	8	.45	
				12.85 - 13.05	4	.23	12	.68	
				13.05 - 13.25	24	1.35	36	2.03	
				13.25 - 13.45	32	1.80	68	3.83	
				13.45 - 13.65	75	4.23	143	8.06	
				13.65 - 13.85	102	5.75	245	13.81	
				13.85 - 14.05	143	8.06	388	21.87	
				14.05 - 14.25	211	11.89	599	33.77	
				14.25 - 14.45	228	12.85	827	46.62	
				14.45 - 14.65	260	14.66	1087	61.27	
				14.65 - 14.85	207	11.67	1294	72.94	
				14.85 - 15.05	189	10.65	1483	83.60	
				15.05 - 15.25	115	6.48	1598	90.08	
				15.25 - 15.45	86	4.85	1684	94.93	
				15.45 - 15.65	49	2.76	1733	97.69	
				15.65 - 15.85	22	1.24	1755	98.93	
				15.85 - 16.05	12	.68	1767	99.61	
				16.05 - 16.25	4	.23	1771	99.83	
				16.25 - 16.45	1	.06	1772	99.89	
				16.45 - 16.65	2	.11	1774	100.00	

## (H7) BIZYGOMATIC BREADTH

The straight-line distance between the right and left zygion landmarks on the zygomatic arches, or upper cheekbones, is measured.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
12.32	4.85	1ST	12.89	5.07	
12.46	4.90	2ND	13.06	5.14	
12.55	4.94	3RD	13.17	5.18	
12.67	4.99	5TH	13.31	5.24	
12.87	5.07	10TH	13.54	5.33	
13.00	5.12	15TH	13.69	5.39	
13.10	5.16	20TH	13.80	5.43	
13.19	5.19	25TH	13.91	5.47	
13.27	5.23	30TH	14.00	5.51	
13.35	5.25	35TH	14.08	5.54	
13.42	5.28	40TH	14.16	5.58	
13.49	5.31	45TH	14.24	5.61	
13.55	5.34	50TH	14.32	5.64	
13.62	5.36	55TH	14.40	5.67	
13.69	5.39	60TH	14.48	5.70	
13.76	5.42	65TH	14.57	5.73	
13.84	5.45	70TH	14.65	5.77	
13.92	5.48	75TH	14.75	5.81	
14.02	5.52	80TH	14.86	5.85	
14.13	5.56	85TH	14.99	5.90	
14.27	5.62	90TH	15.15	5.97	
14.50	5.71	95TH	15.40	6.06	
14.65	5.77	97TH	15.56	6.13	
14.77	5.82	98TH	15.69	6.18	
14.98	5.90	99TH	15.88	6.25	



# BIZYGOMATIC BREADTH

## FEMALES

CM		INCHES
13.57	MEAN VALUE	5.34
.00	SE(MEAN)	.00
.56	STD DEVIATION	.22
.00	SE(STD DEV)	.00
11.85	MINIMUM	4.66
15.69	MAXIMUM	6.18

SYMMETRY---VETA I = .21  
 KURTOSIS---VETA II = 3.32  
 COEF. OF VARIATION = 4.1%  
 NUMBER OF SUBJECTS = 2208

## MALES

CM		INCHES
14.33	MEAN VALUE	5.64
.02	SE(MEAN)	.00
.64	STD DEVIATION	.25
.00	SE(STD DEV)	.00
11.52	MINIMUM	4.53
16.98	MAXIMUM	6.68

SYMMETRY---VETA I = .05  
 KURTOSIS---VETA II = 3.37  
 COEF. OF VARIATION = 4.4%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

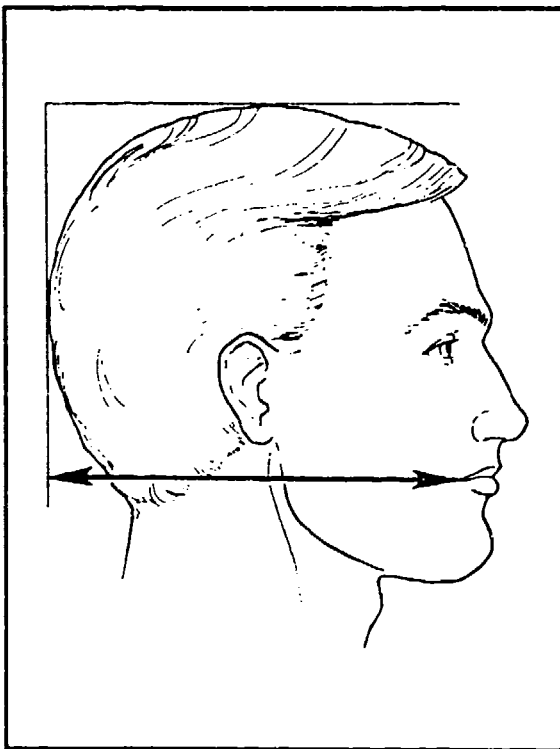
F	FPct	CumF	CumFPct
2	.09	2	.09
3	.14	5	.23
3	.14	8	.36
5	.23	13	.59
14	.63	27	1.22
15	.68	42	1.90
24	1.09	66	2.99
39	1.77	105	4.76
39	1.77	144	6.52
57	2.58	201	9.10
73	3.31	274	12.41
100	4.53	374	16.94
118	5.34	492	22.28
142	6.43	634	28.71
136	6.16	770	34.87
156	7.07	926	41.94
164	7.43	1090	49.37
165	7.47	1255	56.84
156	7.07	1411	63.90
154	6.97	1565	70.88
134	6.07	1699	76.95
102	4.62	1801	81.57
94	4.26	1895	85.82
81	3.67	1976	89.49
53	2.40	2029	91.89
43	1.95	2072	93.84
46	2.08	2118	95.92
25	1.13	2145	97.06
18	.82	2161	97.87
11	.50	2172	98.37
12	.54	2184	98.91
6	.27	2190	99.18
1	.05	2191	99.23
5	.23	2196	99.46
4	.18	2200	99.64
4	.18	2204	99.82
3	.14	2207	99.95
0	.00	2207	99.95
1	.05	2208	100.00

### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
0	.00	1	.06
0	.00	1	.06
1	.06	2	.11
0	.00	2	.11
0	.00	2	.11
0	.00	2	.11
0	.00	2	.11
0	.00	2	.11
3	.17	5	.28
3	.17	8	.45
2	.11	10	.56
1	.06	11	.62
4	.23	15	.85
6	.34	21	1.18
13	.73	34	1.92
12	.68	46	2.59
28	1.58	74	4.17
21	1.18	95	5.36
32	1.80	127	7.16
49	2.76	176	9.92
55	3.10	231	13.02
76	4.28	307	17.31
86	4.85	393	22.15
90	5.07	483	27.23
94	5.30	577	32.53
102	5.75	679	38.28
127	7.16	806	45.43
101	5.69	907	51.13
118	6.65	1025	57.78
112	6.31	1137	64.09
104	5.86	1241	69.95
85	4.79	1326	74.75
67	3.78	1393	78.52
73	4.11	1466	82.64
70	3.95	1536	86.58
59	3.33	1595	89.91
44	2.48	1639	92.39
35	1.97	1674	94.36
28	1.58	1702	95.94
20	1.13	1722	97.07
14	.79	1736	97.86
8	.45	1744	98.31
9	.51	1753	98.82
10	.56	1763	99.38
2	.11	1765	99.49
4	.23	1769	99.72
2	.11	1771	99.83
0	.00	1771	99.83
1	.06	1772	99.89
1	.06	1773	99.94
0	.00	1773	99.94
0	.00	1773	99.94
0	.00	1773	99.94
1	.06	1774	100.00

## (H8) CHEILION-BACK OF HEAD

The horizontal distance between the cheilion landmark at the corner of the closed mouth and the vertical plane tangent to the back of the head is measured.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
15.95	6.28	1ST	16.43	6.47
16.17	6.37	2ND	16.68	6.57
16.31	6.42	3RD	16.84	6.63
16.50	6.50	5TH	17.05	6.71
16.80	6.61	10TH	17.38	6.84
17.00	6.69	15TH	17.60	6.93
17.17	6.76	20TH	17.77	7.00
17.32	6.82	25TH	17.92	7.06
17.45	6.87	30TH	18.05	7.11
17.58	6.92	35TH	18.18	7.16
17.71	6.97	40TH	18.30	7.20
17.83	7.02	45TH	18.41	7.25
17.95	7.07	50TH	18.53	7.30
18.07	7.11	55TH	18.64	7.34
18.19	7.16	60TH	18.76	7.39
18.32	7.21	65TH	18.88	7.43
18.46	7.27	70TH	19.01	7.48
18.61	7.33	75TH	19.15	7.54
18.78	7.39	80TH	19.31	7.60
18.98	7.47	85TH	19.49	7.67
19.22	7.57	90TH	19.72	7.76
19.56	7.70	95TH	20.05	7.90
19.77	7.78	97TH	20.27	7.98
19.91	7.84	98TH	20.43	8.04
20.12	7.92	99TH	20.67	8.14

# CHEILION-BACK OF HEAD

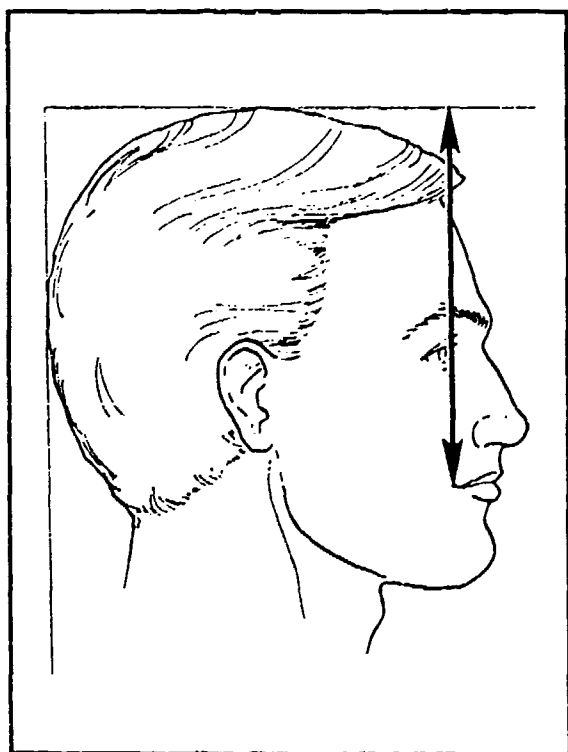
FEMALES		
<u>CM</u>		<u>INCHES</u>
17.97	MEAN VALUE	7.08
.02	SE (MEAN)	.00
.93	STD DEVIATION	.37
.00	SE (STD DEV)	.00
14.79	MINIMUM	5.82
20.78	MAXIMUM	8.18
SYMMETRY---VETA I = .08		
KURTOSIS---VETA II = 2.81		
COEF. OF VARIATION = 5.2%		
NUMBER OF SUBJECTS = 2208		

MALES		
<u>CM</u>		<u>INCHES</u>
18.54	MEAN VALUE	7.30
.02	SE (MEAN)	.00
.91	STD DEVIATION	.36
.02	SE (STD DEV)	.00
15.27	MINIMUM	6.01
21.60	MAXIMUM	8.50
SYMMETRY---VETA I = .03		
KURTOSIS---VETA II = 3.08		
COEF. OF VARIATION = 4.9%		
NUMBER OF SUBJECTS = 1774		

FREQUENCY TABLE									
FEMALES				MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct
2	.09	2	.09	14.75 -	14.95				
1	.05	3	.14	14.95 -	15.15				
0	.00	3	.14	15.15 -	15.35	1	.06	1	.06
5	.23	8	.36	15.35 -	15.55	0	.00	1	.06
8	.36	16	.72	15.55 -	15.75	2	.11	3	.17
6	.27	22	1.00	15.75 -	15.95	1	.06	4	.23
17	.77	39	1.77	15.95 -	16.15	6	.34	10	.56
39	1.77	78	3.53	16.15 -	16.35	5	.28	15	.85
48	2.17	126	5.71	16.35 -	16.55	11	.62	26	1.47
72	3.26	198	8.97	16.55 -	16.75	18	1.01	44	2.48
96	4.35	294	13.32	16.75 -	16.95	22	1.24	66	3.72
119	5.39	413	18.70	16.95 -	17.15	44	2.48	110	6.20
157	7.11	570	25.82	17.15 -	17.35	62	3.49	172	9.70
175	7.93	745	33.74	17.35 -	17.55	86	4.85	258	14.54
176	7.97	921	41.71	17.55 -	17.75	75	4.23	333	18.77
186	8.42	1107	50.14	17.75 -	17.95	115	6.48	448	25.25
185	8.38	1292	58.51	17.95 -	18.15	151	8.51	599	33.77
164	7.43	1456	65.94	18.15 -	18.35	145	8.17	744	41.94
138	6.25	1594	72.19	18.35 -	18.55	162	9.13	906	51.07
170	7.70	1764	79.89	18.55 -	18.75	140	7.89	1046	58.96
104	4.71	1868	84.60	18.75 -	18.95	159	8.96	1205	67.93
89	4.03	1957	88.63	18.95 -	19.15	143	8.06	1348	75.99
80	3.62	2037	92.26	19.15 -	19.35	101	5.69	1449	81.68
63	2.85	2100	95.11	19.35 -	19.55	77	4.34	1526	86.02
39	1.77	2139	96.88	19.55 -	19.75	83	4.68	1609	90.70
25	1.13	2164	98.01	19.75 -	19.95	55	3.10	1664	93.80
26	1.18	2190	99.18	19.95 -	20.15	39	2.20	1703	96.00
7	.32	2197	99.50	20.15 -	20.35	30	1.69	1733	97.69
9	.41	2206	99.91	20.35 -	20.55	12	.68	1745	98.37
1	.05	2207	99.95	20.55 -	20.75	18	1.01	1763	99.38
1	.05	2208	100.00	20.75 -	20.95	1	.06	1764	99.44
				20.95 -	21.15	4	.23	1768	99.66
				21.15 -	21.35	2	.11	1770	99.77
				21.35 -	21.55	2	.11	1772	99.89
				21.55 -	21.75	2	.11	1774	100.00

## (H9) CHEILION-TOP OF HEAD

The vertical distance between the cheilion landmark at the corner of the closed mouth and the horizontal plane tangent to the top of the head is measured.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
15.98	6.29	1ST	17.09	6.73
16.21	6.38	2ND	17.30	6.81
16.36	6.44	3RD	17.43	6.86
16.54	6.51	5TH	17.60	6.93
16.81	6.62	10TH	17.86	7.03
16.98	6.69	15TH	18.03	7.10
17.12	6.74	20TH	18.17	7.15
17.24	6.79	25TH	18.29	7.20
17.34	6.83	30TH	18.39	7.24
17.44	6.87	35TH	18.49	7.28
17.53	6.90	40TH	18.59	7.32
17.62	6.94	45TH	18.68	7.35
17.71	6.97	50TH	18.77	7.39
17.81	7.01	55TH	18.86	7.43
17.90	7.05	60TH	18.96	7.46
18.00	7.08	65TH	19.05	7.50
18.10	7.13	70TH	19.16	7.54
18.21	7.17	75TH	19.28	7.59
18.34	7.22	80TH	19.41	7.64
18.49	7.28	85TH	19.56	7.70
18.68	7.35	90TH	19.76	7.78
18.96	7.47	95TH	20.06	7.90
19.15	7.54	97TH	20.25	7.97
19.28	7.59	98TH	20.40	8.03
19.49	7.67	99TH	20.63	8.12

# CHEILION-TOP OF HEAD

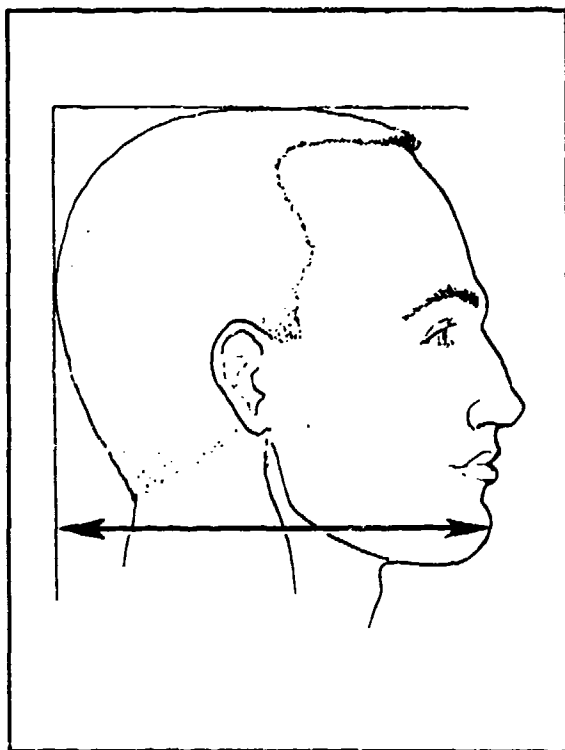
FEMALES			
CM		INCHES	
17.72	MEAN VALUE	6.98	
.02	SE(MEAN)	.00	
.73	STD DEVIATION	.29	
.00	SE(STD DEV)	.00	
15.21	MINIMUM	5.99	
20.06	MAXIMUM	7.90	
SYMMETRY---VETA I = .04			
KURTOSIS---VETA II = 3.10			
COEF. OF VARIATION = 4.1%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
18.79	MEAN VALUE	7.40	
.02	SE(MEAN)	.00	
.75	STD DEVIATION	.29	
.00	SE(STD DEV)	.00	
16.34	MINIMUM	6.43	
21.17	MAXIMUM	8.34	
SYMMETRY---VETA I = .14			
KURTOSIS---VETA II = 3.04			
COEF. OF VARIATION = 4.0%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	15.15 -	15.35						
3	.14	4	.18	15.35 -	15.55						
8	.36	12	.54	15.55 -	15.75						
9	.41	21	.95	15.75 -	15.95						
15	.68	36	1.63	15.95 -	16.15						
26	1.18	62	2.81	16.15 -	16.35	1	.06	1	.06		
45	2.04	107	4.85	16.35 -	16.55	0	.00	1	.06		
86	3.89	193	8.74	16.55 -	16.75	4	.23	5	.28		
115	5.21	308	13.95	16.75 -	16.95	6	.34	11	.62		
160	7.25	468	21.20	16.95 -	17.15	9	.51	20	1.13		
205	9.28	673	30.48	17.15 -	17.35	22	1.24	42	2.37		
220	9.96	893	40.44	17.35 -	17.55	34	1.92	76	4.28		
255	11.55	1148	51.99	17.55 -	17.75	53	2.99	129	7.27		
228	10.33	1376	62.32	17.75 -	17.95	102	5.75	231	13.02		
242	10.96	1618	73.28	17.95 -	18.15	105	5.92	336	18.94		
165	7.47	1783	80.75	18.15 -	18.35	168	9.47	504	28.41		
142	6.43	1925	87.18	18.35 -	18.55	183	10.32	687	38.73		
92	4.17	2017	91.35	18.55 -	18.75	176	9.92	863	48.65		
70	3.17	2087	94.52	18.75 -	18.95	184	10.37	1047	59.02		
56	2.54	2143	97.06	18.95 -	19.15	188	10.60	1235	69.62		
38	1.72	2181	98.78	19.15 -	19.35	147	8.29	1382	77.90		
10	.45	2191	99.23	19.35 -	19.55	127	7.16	1509	85.06		
9	.41	2200	99.64	19.55 -	19.75	88	4.96	1597	90.02		
5	.23	2205	99.86	19.75 -	19.95	51	2.87	1648	92.90		
3	.14	2208	100.00	19.95 -	20.15	51	2.87	1699	95.77		
				20.15 -	20.35	35	1.97	1734	97.75		
				20.35 -	20.55	14	.79	1748	98.53		
				20.55 -	20.75	16	.90	1764	99.44		
				20.75 -	20.95	3	.17	1767	99.61		
				20.95 -	21.15	6	.34	1773	99.94		
				21.15 -	21.35	1	.06	1774	100.00		

## (H10) CHIN-BACK OF HEAD

The horizontal distance between the promenton landmark on the front of the chin and the vertical plane tangent to the back of the head is measured.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
16.57	6.52	1ST	16.97	6.68	
16.82	6.62	2ND	17.27	6.80	
16.97	6.68	3RD	17.46	6.87	
17.19	6.77	5TH	17.71	6.97	
17.52	6.90	10TH	18.10	7.13	
17.74	6.99	15TH	18.36	7.23	
17.93	7.06	20TH	18.57	7.31	
18.09	7.12	25TH	18.74	7.38	
18.23	7.18	30TH	18.90	7.44	
18.37	7.23	35TH	19.04	7.50	
18.50	7.28	40TH	19.18	7.55	
18.62	7.33	45TH	19.31	7.60	
18.75	7.38	50TH	19.43	7.65	
18.88	7.43	55TH	19.56	7.70	
19.01	7.48	60TH	19.69	7.75	
19.14	7.54	65TH	19.82	7.80	
19.28	7.59	70TH	19.96	7.86	
19.44	7.65	75TH	20.11	7.92	
19.61	7.72	80TH	20.28	7.99	
19.81	7.80	85TH	20.48	8.06	
20.05	7.90	90TH	20.73	8.16	
20.40	8.03	95TH	21.11	8.31	
20.62	8.12	97TH	21.37	8.41	
20.77	8.16	98TH	21.56	8.49	
20.98	8.26	99TH	21.87	8.61	

# CHIN-BACK OF HEAD

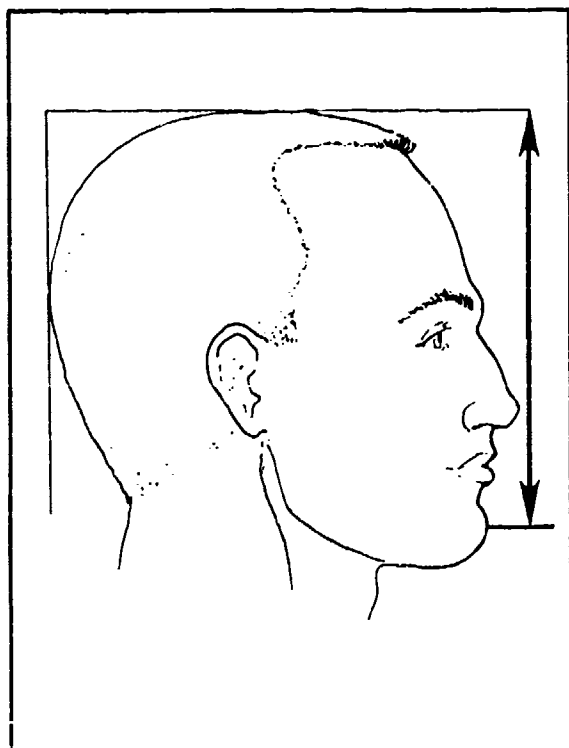
FEMALES			
CM		INCHES	
18.76	MEAN VALUE	7.39	
.02	SE (MEAN)	.00	
.98	STD DEVIATION	.39	
.00	SE (STD DEV)	.00	
15.21	MINIMUM	5.99	
22.21	MAXIMUM	8.74	
SYMMETRY---VETA I = .06			
KURTOSIS---VETA II = 2.90			
COEF. OF VARIATION = 5.2%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
19.42	MEAN VALUE	7.65	
.02	SE (MEAN)	.00	
1.03	STD DEVIATION	.41	
.02	SE (STD DEV)	.00	
15.02	MINIMUM	5.91	
22.66	MAXIMUM	8.92	
SYMMETRY---VETA I = -.08			
KURTOSIS---VETA II = 3.20			
COEF. OF VARIATION = 5.3%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS	F	FPct	CumF
1	.05	1	.05	14.95 - 15.15	1	.06	1
0	.00	1	.05	15.15 - 15.35	0	.00	1
0	.00	1	.05	15.35 - 15.55	0	.00	1
2	.09	3	.14	15.55 - 15.75	0	.00	1
3	.14	6	.27	15.75 - 15.95	1	.06	2
4	.18	10	.45	15.95 - 16.15	2	.11	4
10	.45	20	.91	16.15 - 16.35	2	.11	6
21	.95	41	1.86	16.35 - 16.55	2	.11	8
13	.59	54	2.45	16.55 - 16.75	3	.17	11
47	2.13	101	4.57	16.75 - 16.95	3	.17	14
59	2.67	160	7.25	16.95 - 17.15	15	.85	29
81	3.67	241	10.91	17.15 - 17.35	20	1.13	49
93	4.21	334	15.13	17.35 - 17.55	18	1.01	67
117	5.30	451	20.43	17.55 - 17.75	28	1.58	95
130	5.89	581	26.31	17.75 - 17.95	30	1.69	125
169	7.65	750	33.97	17.95 - 18.15	52	2.93	177
171	7.74	921	41.71	18.15 - 18.35	80	4.51	257
162	7.34	1083	49.05	18.35 - 18.55	82	4.62	339
195	8.83	1278	57.88	18.55 - 18.75	109	6.14	448
185	8.38	1463	66.26	18.75 - 18.95	116	6.54	564
151	6.84	1614	73.10	18.95 - 19.15	134	7.55	698
124	5.62	1738	78.71	19.15 - 19.35	132	7.44	830
106	4.80	1844	83.51	19.35 - 19.55	147	8.29	977
90	4.08	1934	87.59	19.55 - 19.75	128	7.22	1105
82	3.71	2016	91.30	19.75 - 19.95	114	6.43	1219
67	3.03	2083	94.34	19.95 - 20.15	122	6.88	1341
47	2.13	2130	96.47	20.15 - 20.35	110	6.20	1451
29	1.31	2159	97.78	20.35 - 20.55	88	4.96	1539
27	1.22	2186	99.00	20.55 - 20.75	65	3.66	1604
7	.32	2193	99.32	20.75 - 20.95	43	2.42	1647
4	.18	2197	99.50	20.95 - 21.15	42	2.37	1689
5	.23	2202	99.73	21.15 - 21.35	32	1.80	1721
4	.18	2206	99.91	21.35 - 21.55	18	1.01	1739
0	.00	2206	99.91	21.55 - 21.75	10	.56	1749
1	.05	2207	99.95	21.75 - 21.95	11	.62	1760
1	.05	2208	100.00	21.95 - 22.15	8	.45	1768
				22.15 - 22.35	3	.17	1771
				22.35 - 22.55	2	.11	1773
				22.55 - 22.75	1	.06	1774

# **(H11) CHIN-TOP OF HEAD**

The vertical distance between the promenton landmark on the front of the chin and the horizontal plane tangent to the top of the head is measured.



## **THE PERCENTILES**

<b>FEMALES</b>			<b>MALES</b>		
<b>CM</b>	<b>INCHES</b>		<b>CM</b>	<b>INCHES</b>	
18.32	7.2.	1ST	19.68	7.75	
18.57	7.31	2ND	19.91	7.84	
18.72	7.37	3RD	20.06	7.90	
18.92	7.45	5TH	20.26	7.97	
19.22	7.57	10TH	20.56	8.10	
19.43	7.65	15TH	20.77	8.18	
19.59	7.71	20TH	20.93	8.24	
19.72	7.77	25TH	21.08	8.30	
19.85	7.81	30TH	21.21	8.35	
19.97	7.86	35TH	21.32	8.40	
20.08	7.90	40TH	21.44	8.44	
20.18	7.95	45TH	21.55	8.48	
20.29	7.99	50TH	21.66	8.53	
20.40	8.03	55TH	21.77	8.57	
20.50	8.07	60TH	21.88	8.62	
20.62	8.12	65TH	22.00	8.66	
20.74	8.16	70TH	22.13	8.71	
20.86	8.21	75TH	22.26	8.77	
21.01	8.27	80TH	22.42	8.83	
21.18	8.34	85TH	22.60	8.90	
21.39	8.42	90TH	22.83	8.99	
21.71	8.55	95TH	23.18	9.13	
21.92	8.63	97TH	23.41	9.22	
22.06	8.69	98TH	23.58	9.29	
22.29	8.78	99TH	23.86	9.39	



# CHIN-TOP OF HEAD

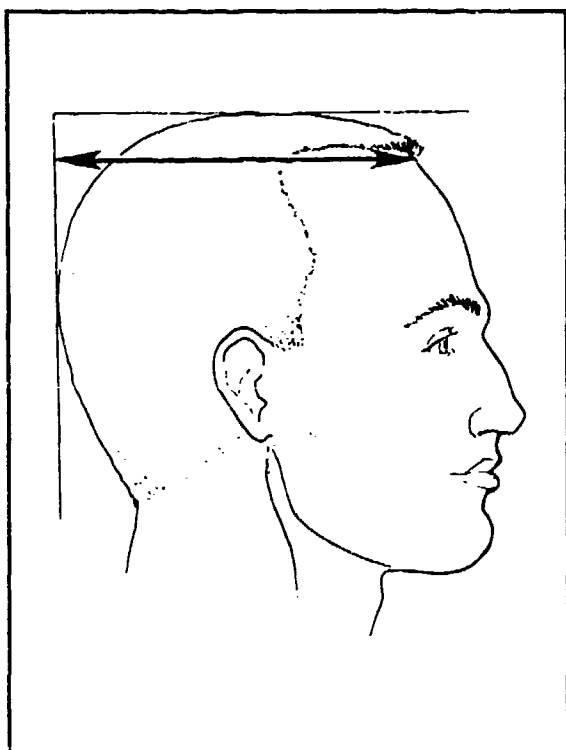
FEMALES		
<u>CM</u>		<u>INCHES</u>
20.30	MEAN VALUE	7.99
.02	SE (MEAN)	.00
.85	STD DEVIATION	.33
.00	SE (STD DEV)	.00
17.68	MINIMUM	6.96
23.28	MAXIMUM	9.16
SYMMETRY---VETA I = .06		
KURTOSIS---VETA II = 3.03		
COEF. OF VARIATION = 4.2%		
NUMBER OF SUBJECTS = 2208		

MALES		
<u>CM</u>		<u>INCHES</u>
21.68	MEAN VALUE	8.54
.02	SE (MEAN)	.00
.89	STD DEVIATION	.35
.00	SE (STD DEV)	.00
18.71	MINIMUM	7.37
24.51	MAXIMUM	9.65
SYMMETRY---VETA I = .12		
KURTOSIS---VETA II = 3.03		
COEF. OF VARIATION = 4.1%		
NUMBER OF SUBJECTS = 1774		

FREQUENCY TABLE								
FEMALES				MALES				
F	FPct	CumF	CumFPct	<u>CENTIMETERS</u>	F	FPct	CumF	CumFPct
4	.18	4	.18	17.65 - 17.85				
6	.27	10	.45	17.85 - 18.05				
6	.27	16	.72	18.05 - 18.25				
15	.68	31	1.40	18.25 - 18.45				
23	1.04	54	2.45	18.45 - 18.65				
43	1.95	97	4.39	18.65 - 18.85	1	.06	1	.06
41	1.86	138	6.25	18.85 - 19.05	1	.06	2	.11
84	3.80	222	10.05	19.05 - 19.25	2	.11	4	.23
124	5.62	346	15.67	19.25 - 19.45	6	.34	10	.56
139	6.30	485	21.97	19.45 - 19.65	6	.34	16	.90
181	8.20	666	30.16	19.65 - 19.85	12	.68	28	1.58
200	9.06	866	39.22	19.85 - 20.05	25	1.41	53	2.99
181	8.20	1047	47.42	20.05 - 20.25	29	1.63	82	4.62
221	10.01	1268	57.43	20.25 - 20.45	56	3.16	138	7.78
183	8.29	1451	65.72	20.45 - 20.65	66	3.72	204	11.50
202	9.15	1653	74.86	20.65 - 20.85	90	5.07	294	16.57
145	6.57	1798	81.43	20.85 - 21.05	127	7.16	421	23.73
116	5.25	1914	86.68	21.05 - 21.25	152	8.57	573	32.30
97	4.39	2011	91.08	21.25 - 21.45	140	7.89	713	40.19
69	3.13	2080	94.20	21.45 - 21.65	161	9.08	874	49.27
48	2.17	2128	96.38	21.65 - 21.85	170	9.58	1044	58.85
40	1.81	2168	98.19	21.85 - 22.05	139	7.84	1183	66.69
16	.72	2184	98.91	22.05 - 22.25	139	7.84	1322	74.52
8	.36	2192	99.28	22.25 - 22.45	95	5.36	1417	79.88
7	.32	2199	99.59	22.45 - 22.65	104	5.86	1521	85.74
3	.14	2202	99.73	22.65 - 22.85	69	3.89	1590	89.63
4	.18	2206	99.91	22.85 - 23.05	67	3.78	1657	93.40
1	.05	2207	99.95	23.05 - 23.25	46	2.59	1703	96.00
1	.05	2208	100.00	23.25 - 23.45	26	1.47	1729	97.46
				23.45 - 23.65	12	.68	1741	98.14
				23.65 - 23.85	14	.79	1755	98.93
				23.85 - 24.05	7	.39	1762	99.32
				24.05 - 24.25	5	.28	1767	99.61
				24.25 - 24.45	6	.34	1773	99.94
				24.45 - 24.65	1	.06	1774	100.00

## (H12) CRINION-BACK OF HEAD

The horizontal distance between the crinion landmark on the lowest point of the hairline on the forehead and the vertical plane tangent to the back of the head is measured.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
15.86	6.24	1ST	15.91	6.26
16.10	6.34	2ND	16.17	6.37
16.25	6.40	3RD	16.35	6.44
16.47	6.48	5TH	16.60	6.54
16.80	6.61	10TH	17.01	6.70
17.02	6.70	15TH	17.28	6.80
17.20	6.77	20TH	17.50	6.89
17.35	6.83	25TH	17.69	6.96
17.49	6.88	30TH	17.85	7.03
17.61	6.93	35TH	18.00	7.09
17.73	6.98	40TH	18.14	7.14
17.84	7.02	45TH	18.27	7.19
17.95	7.07	50TH	18.40	7.25
18.06	7.11	55TH	18.53	7.30
18.18	7.16	60TH	18.65	7.34
18.29	7.20	65TH	18.78	7.39
18.41	7.25	70TH	18.91	7.45
18.54	7.30	75TH	19.05	7.50
18.68	7.35	80TH	19.20	7.56
18.84	7.42	85TH	19.37	7.62
19.04	7.50	90TH	19.57	7.71
19.34	7.61	95TH	19.87	7.82
19.53	7.69	97TH	20.07	7.90
19.67	7.74	98TH	20.21	7.96
19.89	7.83	99TH	20.44	8.05

# CRINION-BACK OF HEAD

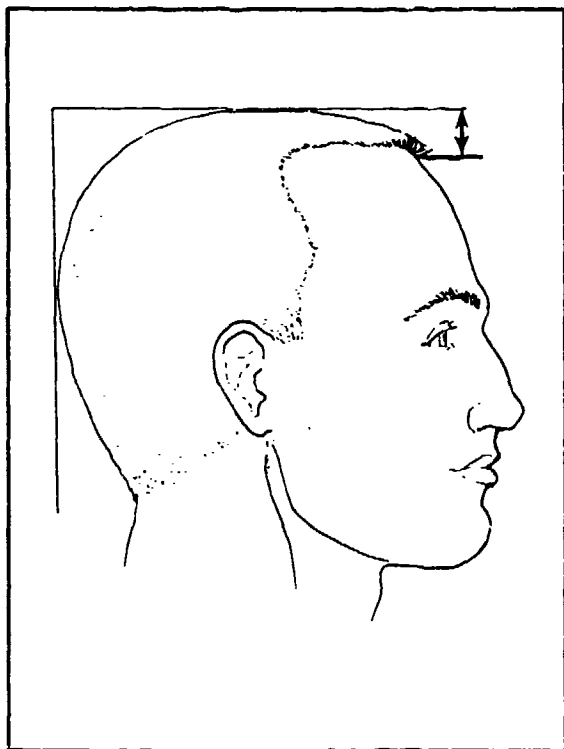
FEMALES			
CM		INCHES	
17.93	MEAN VALUE	7.06	
.02	SE(MEAN)	.00	
.87	STD DEVIATION	.34	
.00	SE(STD DEV)	.00	
14.60	MINIMUM	5.75	
20.61	MAXIMUM	8.11	
SYMMETRY---VETA I = -.14			
KURTOSIS---VETA II = .3.03			
COEF. OF VARIATION = 4.8%			
NUMBER OF SUBJECTS = 2206			

MALES			
CM		INCHES	
18.34	MEAN VALUE	7.22	
.02	SE(MEAN)	.00	
1.00	STD DEVIATION	.40	
.02	SE(STD DEV)	.00	
14.35	MINIMUM	5.65	
21.88	MAXIMUM	8.61	
SYMMETRY---VETA I = -.32			
KURTOSIS---VETA II = 3.13			
COEF. OF VARIATION = 5.5%			
NUMBER OF SUBJECTS = 1747			

FREQUENCY TABLE											
FEMALES											
F	FPct	CumF	CumFPct	CENTIMETERS				F	FPct	CumF	CumFPct
1	.05	1	.05	14.25 -	14.45	1	.06	1	.06	1	.06
1	.05	2	.09	14.45 -	14.65	1	.06	2	.11	2	.11
1	.05	3	.14	14.65 -	14.85	1	.06	3	.17	3	.17
1	.05	4	.18	14.85 -	15.05	2	.11	5	.29	5	.29
2	.09	6	.27	15.05 -	15.25	1	.06	6	.34	6	.34
5	.23	11	.50	15.25 -	15.45	6	.34	12	.69	12	.69
7	.32	18	.82	15.45 -	15.65	1	.06	13	.74	13	.74
20	.91	38	1.72	15.65 -	15.85	6	.34	19	1.09	19	1.09
30	1.36	68	3.08	15.85 -	16.05	6	.34	25	1.43	25	1.43
41	1.86	109	4.94	16.05 -	16.25	12	.69	37	2.12	37	2.12
58	2.63	167	7.57	16.25 -	16.45	25	1.43	62	3.55	62	3.55
67	3.04	234	10.61	16.45 -	16.65	23	1.32	85	4.87	85	4.87
104	4.71	338	15.32	16.65 -	16.85	51	2.92	136	7.78	136	7.78
123	5.58	461	20.90	16.85 -	17.05	59	3.38	195	11.16	195	11.16
151	6.84	612	27.74	17.05 -	17.25	68	3.89	263	15.05	263	15.05
176	7.98	788	35.72	17.25 -	17.45	86	4.92	349	19.98	349	19.98
197	8.93	985	44.65	17.45 -	17.65	79	4.52	428	24.50	428	24.50
219	9.93	1204	54.58	17.65 -	17.85	76	4.35	504	28.85	504	28.85
202	9.16	1406	63.74	17.85 -	18.05	123	7.04	627	35.89	627	35.89
189	8.57	1595	72.30	18.05 -	18.25	130	7.44	757	43.33	757	43.33
153	6.94	1748	79.24	18.25 -	18.45	134	7.67	891	51.00	891	51.00
132	5.98	1880	85.22	18.45 -	18.65	156	8.93	1047	59.93	1047	59.93
110	4.99	1990	90.21	18.65 -	18.85	132	7.56	1179	67.49	1179	67.49
78	3.54	2068	93.74	18.85 -	19.05	135	7.73	1314	75.21	1314	75.21
46	2.09	2114	95.83	19.05 -	19.25	100	5.72	1414	80.94	1414	80.94
42	1.90	2156	97.73	19.25 -	19.45	110	6.30	1524	87.24	1524	87.24
27	1.22	2183	98.96	19.45 -	19.65	81	4.64	1605	91.87	1605	91.87
11	.50	2194	99.46	19.65 -	19.85	46	2.63	1651	94.50	1651	94.50
6	.27	2200	99.73	19.85 -	20.05	45	2.58	1696	97.08	1696	97.08
4	.18	2204	99.91	20.05 -	20.25	19	1.09	1715	98.17	1715	98.17
2	.09	2206	100.00	20.25 -	20.45	17	.97	1732	99.14	1732	99.14
				20.45 -	20.65	6	.34	1738	99.48	1738	99.48
				20.65 -	20.85	6	.34	1744	99.83	1744	99.83
				20.85 -	21.05	1	.06	1745	99.89	1745	99.89
				21.05 -	21.25	1	.06	1746	99.94	1746	99.94
				21.25 -	21.45	0	.00	1746	99.94	1746	99.94
				21.45 -	21.65	0	.00	1746	99.94	1746	99.94
				21.65 -	21.85	0	.00	1746	99.94	1746	99.94
				21.85 -	22.05	1	.06	1747	100.00	1747	100.00

## (H13) CRINION-TOP OF HEAD

The vertical distance between the crinion landmark on the lowest point of the hairline on the forehead and the horizontal plane tangent to the top of the head is measured.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
2.10	.83	1ST	1.75	.69
2.32	.91	2ND	2.07	.81
2.46	.97	3RD	2.26	.89
2.66	1.05	5TH	2.51	.99
2.97	1.17	10TH	2.87	1.13
3.19	1.25	15TH	3.11	1.22
3.36	1.32	20TH	3.30	1.30
3.51	1.38	25TH	3.46	1.36
3.65	1.44	30TH	3.61	1.42
3.77	1.49	35TH	3.75	1.47
3.89	1.53	40TH	3.88	1.53
4.01	1.58	45TH	4.01	1.58
4.13	1.63	50TH	4.14	1.63
4.25	1.67	55TH	4.27	1.68
4.37	1.72	60TH	4.40	1.73
4.50	1.77	65TH	4.54	1.79
4.63	1.82	70TH	4.69	1.85
4.78	1.88	75TH	4.85	1.91
4.95	1.95	80TH	5.04	1.98
5.15	2.03	85TH	5.26	2.07
5.40	2.13	90TH	5.53	2.18
5.79	2.28	95TH	5.94	2.34
6.05	2.38	97TH	6.19	2.44
6.25	2.46	98TH	6.38	2.51
6.57	2.59	99TH	6.65	2.62

# CRINION-TOP OF HEAD

## FEMALES

<u>CM</u>		<u>INCHES</u>
4.17	MEAN VALUE	1.64
.02	SE(MEAN)	.00
.95	STD DEVIATION	.37
.00	SE(STD DEV)	.00
1.52	MINIMUM	.60
7.83	MAXIMUM	3.08
SYMMETRY---VETA I = .25		
KURTOSIS---VETA II = 3.14		
COEF. OF VARIATION = 22.8%		
NUMBER OF SUBJECTS = 2206		

## MALES

<u>CM</u>		<u>INCHES</u>
4.17	MEAN VALUE	1.64
.02	SE(MEAN)	.00
1.04	STD DEVIATION	.41
.02	SE(STD DEV)	.00
1.16	MINIMUM	.46
7.35	MAXIMUM	2.89
SYMMETRY---VETA I = .11		
KURTOSIS---VETA II = 2.94		
COEF. OF VARIATION = 24.8%		
NUMBER OF SUBJECTS = 1747		

## FREQUENCY TABLE

### FEMALES

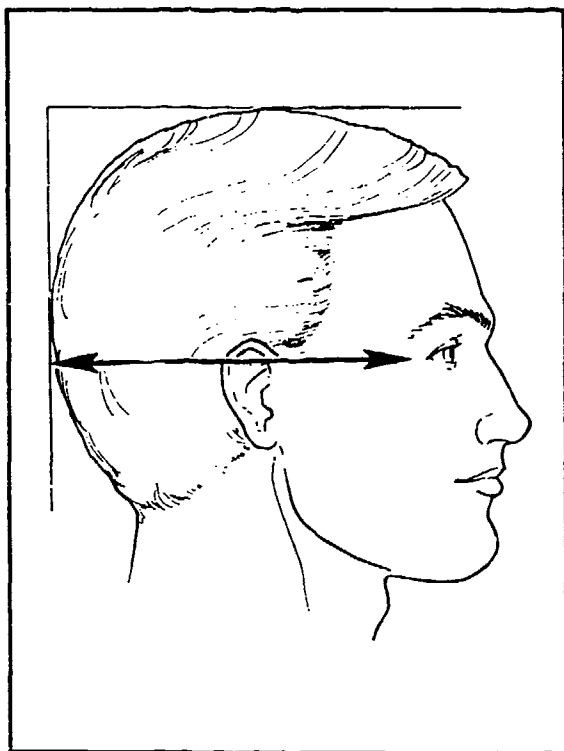
F	FPct	CumF	CumFPct
1	.05	1	.05
3	.14	4	.18
6	.27	10	.45
15	.68	25	1.13
22	1.00	47	2.13
33	1.50	80	3.63
51	2.31	131	5.94
86	3.90	217	9.84
86	3.90	303	13.74
127	5.76	430	19.49
151	6.84	581	26.34
157	7.12	738	33.45
188	8.52	926	41.98
185	8.39	1111	50.36
193	8.75	1304	59.11
168	7.62	1472	66.73
156	7.07	1628	73.80
138	6.26	1766	80.05
114	5.17	1880	85.22
92	4.17	1972	89.39
63	2.86	2035	92.25
61	2.77	2096	95.01
29	1.31	2125	96.33
23	1.04	2148	97.37
24	1.09	2172	98.46
10	.45	2182	98.91
9	.41	2191	99.32
4	.18	2195	99.50
3	.14	2198	99.64
4	.18	2202	99.82
2	.09	2204	99.91
1	.05	2205	99.95
1	.05	2206	100.00

### MALES

F	FPct	CumF	CumFPct
4	.23	4	.23
3	.17	7	.40
9	.52	16	.92
8	.46	24	1.37
17	.97	41	2.35
16	.92	57	3.26
38	2.18	95	5.44
39	2.23	134	7.67
74	4.24	208	11.91
78	4.46	286	16.37
83	4.75	369	21.12
114	6.53	483	27.65
127	7.27	610	34.92
120	6.87	730	41.79
132	7.56	862	49.34
121	6.93	983	56.27
142	8.13	1125	64.40
145	8.30	1270	72.70
97	5.55	1367	78.25
95	5.44	1462	83.69
65	3.72	1527	87.41
52	2.98	1579	90.38
33	1.89	1612	92.27
38	2.18	1650	94.45
34	1.95	1684	96.39
23	1.32	1707	97.71
20	1.14	1727	98.86
5	.29	1732	99.14
7	.40	1739	99.54
6	.34	1745	99.89
1	.06	1746	99.94
1	.06	1747	100.00

## (H14) ECTOORBITALE-BACK OF HEAD

The horizontal distance between the ectoorbitale landmark just behind the bony eye socket at the level of the outer corner of the eye and the vertical plane tangent to the back of the head is measured.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
13.92	5.48	1ST	14.54	5.72	
14.09	5.55	2ND	14.70	5.79	
14.20	5.59	3RD	14.81	5.83	
14.35	5.65	5TH	14.96	5.89	
14.57	5.74	10TH	15.19	5.98	
14.72	5.79	15TH	15.35	6.05	
14.84	5.84	20TH	15.48	6.10	
14.94	5.88	25TH	15.59	6.14	
15.03	5.92	30TH	15.69	6.18	
15.11	5.95	35TH	15.78	6.21	
15.19	5.98	40TH	15.86	6.24	
15.27	6.01	45TH	15.94	6.28	
15.35	6.04	50TH	16.02	6.31	
15.43	6.07	55TH	16.10	6.34	
15.50	6.10	60TH	16.18	6.37	
15.59	6.14	65TH	16.26	6.40	
15.67	6.17	70TH	16.34	6.43	
15.76	6.21	75TH	16.43	6.47	
15.87	6.25	80TH	16.53	6.51	
15.99	6.29	85TH	16.65	6.56	
16.14	6.35	90TH	16.80	6.61	
16.36	6.44	95TH	17.03	6.70	
16.50	6.49	97TH	17.18	6.76	
16.60	6.53	98TH	17.30	6.81	
16.75	6.59	99TH	17.49	6.89	

# ECTOORBITALE-BACK OF HEAD

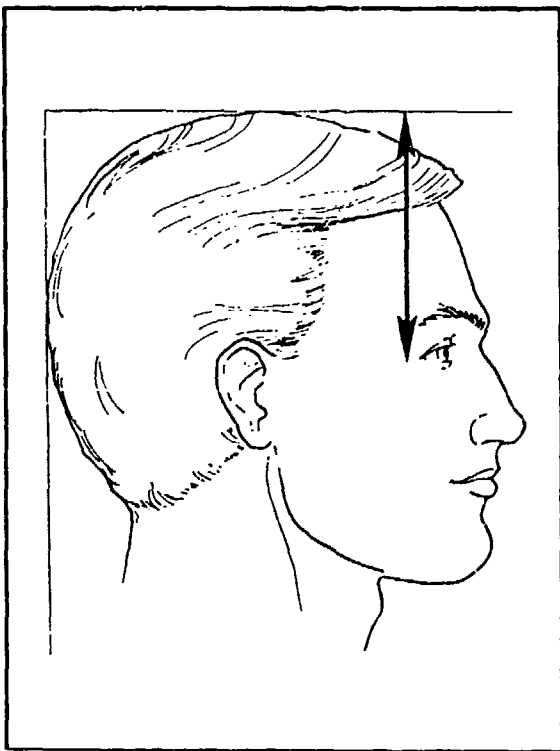
FEMALES		
CM		INCHES
15.35	MEAN VALUE	6.04
.00	SE (MEAN)	.00
.61	STD DEVIATION	.24
.00	SE (STD DEV)	.00
13.17	MINIMUM	5.18
17.23	MAXIMUM	6.78
SYMMETRY---VETA I = -.06		
KURTOSIS---VETA II = 3.00		
COEF. OF VARIATION = 4.0%		
NUMBER OF SUBJECTS = 2208		

MALES		
CM		INCHES
16.01	MEAN VALUE	6.30
.00	SE (MEAN)	.00
.63	STD DEVIATION	.25
.00	SE (STD DEV)	.00
14.02	MINIMUM	5.52
18.47	MAXIMUM	7.27
SYMMETRY---VETA I = .00		
KURTOSIS---VETA II = 3.15		
COEF. OF VARIATION = 3.9%		
NUMBER OF SUBJECTS = 1774		

FREQUENCY TABLE											
FEMALES											
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	13.05 -	13.25	1	.06	1	.06		
5	.23	6	.27	13.25 -	13.45	4	.23	5	.28		
4	.18	10	.45	13.45 -	13.65	8	.45	13	.73		
6	.27	16	.72	13.65 -	13.85	17	.96	30	1.69		
23	1.04	39	1.77	13.85 -	14.05	29	1.63	59	3.33		
35	1.59	74	3.35	14.05 -	14.25	62	3.49	121	6.82		
75	3.40	149	6.75	14.25 -	14.45	84	4.74	205	11.56		
120	5.43	269	12.18	14.45 -	14.65	130	7.33	335	18.88		
197	8.92	466	21.11	14.65 -	14.85	163	9.19	498	28.07		
228	10.33	694	31.43	14.85 -	15.05	192	10.82	690	38.90		
260	11.78	954	43.21	15.05 -	15.25	231	13.02	921	51.92		
292	13.22	1246	56.43	15.25 -	15.45	226	12.74	1147	64.66		
277	12.55	1523	68.98	15.45 -	15.65	208	11.72	1355	76.38		
243	11.01	1766	79.98	15.65 -	15.85	155	8.74	1510	85.12		
168	7.61	1934	87.59	15.85 -	16.05	118	6.65	1628	91.77		
103	4.66	2037	92.26	16.05 -	16.25	66	3.72	1694	95.49		
95	4.30	2132	96.56	16.25 -	16.45	39	2.20	1733	97.69		
39	1.77	2171	98.32	16.45 -	16.65	22	1.24	1755	98.93		
27	1.22	2198	99.55	16.65 -	16.85	7	.39	1762	99.32		
7	.32	2205	99.86	16.85 -	17.05	5	.28	1767	99.61		
3	.14	2208	100.00	17.05 -	17.25	4	.23	1771	99.83		
				17.25 -	17.45	2	.11	1773	99.94		
				17.45 -	17.65	0	.00	1773	99.94		
				17.65 -	17.85	1	.06	1774	100.00		
				17.85 -	18.05						
				18.05 -	18.25						
				18.25 -	18.45						
				18.45 -	18.65						

## (H15) ECTOORBITALE-TOP OF HEAD

The vertical distance between the ectoorbitale landmark just behind the bony eye socket at the level of the outer corner of the eye and the horizontal plane tangent to the top of the head is measured.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
9.77	3.85	1ST	10.44	4.11	
9.95	3.92	2ND	10.63	4.18	
10.06	3.96	3RD	10.74	4.23	
10.21	4.02	5TH	10.89	4.29	
10.43	4.11	10TH	11.10	4.37	
10.58	4.16	15TH	11.24	4.42	
10.69	4.21	20TH	11.35	4.47	
10.78	4.24	25TH	11.44	4.50	
10.87	4.28	30TH	11.52	4.54	
10.94	4.31	35TH	11.60	4.57	
11.02	4.34	40TH	11.67	4.60	
11.08	4.36	45TH	11.74	4.62	
11.15	4.39	50TH	11.81	4.65	
11.22	4.42	55TH	11.88	4.68	
11.29	4.45	60TH	11.96	4.71	
11.36	4.47	65TH	12.03	4.74	
11.44	4.50	70TH	12.1	4.77	
11.52	4.54	75TH	12.20	4.80	
11.62	4.57	80TH	12.30	4.84	
11.73	4.62	85TH	12.41	4.89	
11.87	4.67	90TH	12.56	4.94	
12.09	4.76	95TH	12.77	5.03	
12.24	4.82	97TH	12.91	5.08	
12.36	4.86	98TH	13.01	5.12	
12.55	4.94	99TH	13.16	5.18	



# ECTOORBITALE-TOP OF HEAD

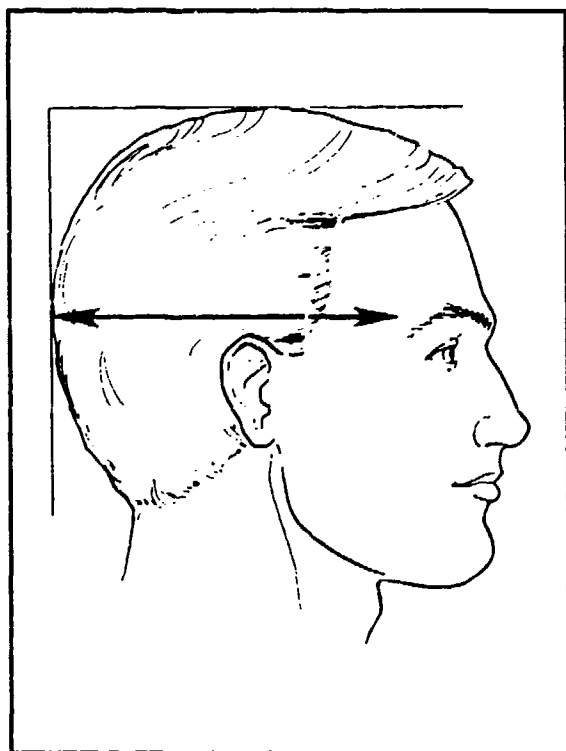
FEMALES			
CM		INCHES	
11.15	MEAN VALUE	4.39	
.00	SE(MEAN)	.00	
.57	STD DEVIATION	.22	
.00	SE(STD DEV)	.00	
9.30	MINIMUM	3.66	
13.53	MAXIMUM	5.33	
SYMMETRY---VETA I = .03			
KURTOSIS---VETA II = 3.24			
COEF. OF VARIATION = 5.1%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
11.82	MEAN VALUE	4.65	
.00	SE(MEAN)	.00	
.57	STD DEVIATION	.23	
.00	SE(STD DEV)	.00	
9.77	MINIMUM	3.85	
14.04	MAXIMUM	5.53	
SYMMETRY---VETA I = .02			
KURTOSIS---VETA II = 3.25			
COEF. OF VARIATION = 4.9%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	9.25 - 9.35		1	.06	1	.06		
0	.00	1	.05	9.35 - 9.45		2	.11	3	.17		
4	.18	5	.23	9.45 - 9.55		0	.00	3	.17		
4	.18	9	.41	9.55 - 9.65		3	.17	6	.34		
11	.50	20	.91	9.65 - 9.75		2	.11	8	.45		
14	.63	34	1.54	9.75 - 9.85		5	.28	13	.73		
11	.50	45	2.04	9.85 - 9.95		5	.28	18	1.01		
17	.77	62	2.81	9.95 - 10.05		4	.23	22	1.24		
26	1.18	88	3.99	10.05 - 10.15		21	1.18	43	2.42		
25	1.13	113	5.12	10.15 - 10.25		11	.62	54	3.04		
54	2.45	167	7.56	10.25 - 10.35		19	1.07	73	4.11		
67	3.03	234	10.60	10.35 - 10.45		31	1.75	104	5.86		
76	3.44	310	14.04	10.45 - 10.55		41	2.31	145	8.17		
103	4.66	413	18.70	10.55 - 10.65		61	3.44	206	11.61		
107	4.85	520	23.55	10.65 - 10.75		68	3.83	274	15.45		
132	5.98	652	29.53	10.75 - 10.85		93	5.24	367	20.69		
126	5.71	778	35.24	10.85 - 10.95		101	5.69	468	26.38		
157	6.88	930	42.12	10.95 - 11.05		99	5.58	567	31.96		
140	6.34	1070	48.46	11.05 - 11.15		110	6.20	677	38.16		
175	7.93	1245	56.39	11.15 - 11.25		132	7.44	809	45.60		
155	7.02	1400	63.41	11.25 - 11.35		126	7.10	935	52.71		
146	6.61	1546	70.02	11.35 - 11.45		114	6.43	1049	59.13		
164	7.43	1710	77.45	11.45 - 11.55		123	6.93	1172	66.07		
114	5.16	1824	82.61	11.55 - 11.65		105	5.92	1277	71.98		
83	3.76	1907	86.37	11.65 - 11.75		90	5.07	1367	77.06		
70	3.17	1977	89.54	11.75 - 11.85		86	4.85	1453	81.91		
66	2.99	2043	92.53	11.85 - 11.95		82	4.62	1535	86.53		
43	1.95	2086	94.47	11.95 - 12.05		64	3.61	1599	90.14		
33	1.49	2119	95.97	12.05 - 12.15		47	2.65	1646	92.78		
24	1.09	2143	97.06	12.15 - 12.25		41	2.31	1687	95.10		
20	.91	2163	97.96	12.25 - 12.35		28	1.58	1715	96.67		
14	.63	2177	98.60	12.35 - 12.45		11	.62	1726	97.29		
11	.50	2188	99.09	12.45 - 12.55		16	.90	1742	98.20		
7	.32	2195	99.41	12.55 - 12.65		15	.85	1757	99.04		
5	.23	2200	99.64	12.65 - 12.75		3	.17	1760	99.21		
4	.18	2204	99.82	12.75 - 12.85		5	.28	1765	99.49		
0	.00	2204	99.82	12.85 - 12.95		2	.11	1767	99.61		
3	.14	2207	99.95	12.95 - 13.05		2	.11	1769	99.72		
0	.00	2207	99.95	13.05 - 13.15		2	.11	1771	99.83		
0	.00	2207	99.95	13.15 - 13.25		0	.00	1771	99.83		
0	.00	2207	99.95	13.25 - 13.35		2	.11	1773	99.94		
0	.00	2207	99.95	13.35 - 13.45		0	.00	1773	99.94		
1	.05	2208	100.00	13.45 - 13.55		1	.06	1774	100.00		
				13.55 - 13.65							
				13.65 - 13.75							
				13.75 - 13.85							
				13.85 - 13.95							
				13.95 - 14.05							

## (H16) FRONTOTEMPORALE-BACK OF HEAD

The horizontal distance between the frontotemporale landmark on the temporal crest at the side of the forehead and the vertical plane tangent to the back of the head is measured.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
15.17	5.97	1ST	15.95	6.28	
15.35	6.04	2ND	16.10	6.34	
15.46	6.08	3RD	16.21	6.38	
15.60	6.14	5TH	16.36	6.44	
15.83	6.23	10TH	16.60	6.54	
15.98	6.29	15TH	16.77	6.60	
16.10	6.34	20TH	16.90	6.65	
16.20	6.38	25TH	17.02	6.70	
16.29	6.41	30TH	17.12	6.74	
16.38	6.45	35TH	17.21	6.78	
16.46	6.48	40TH	17.30	6.81	
16.54	6.51	45TH	17.38	6.84	
16.61	6.54	50TH	17.46	6.87	
16.69	6.57	55TH	17.55	6.91	
16.77	6.60	60TH	17.63	6.94	
16.85	6.63	65TH	17.71	6.97	
16.94	6.67	70TH	17.79	7.01	
17.03	6.71	75TH	17.89	7.04	
17.14	6.75	80TH	17.99	7.08	
17.26	6.80	85TH	18.10	7.13	
17.41	6.86	90TH	18.25	7.19	
17.64	6.94	95TH	18.48	7.27	
17.78	7.00	97TH	18.63	7.33	
17.88	7.04	98TH	18.74	7.38	
18.04	7.10	99TH	18.94	7.46	

## FRONTOTEMPORALE-BACK OF HEAD

## FEMALES

<u>CM</u>		<u>INCHES</u>
16.61	MEAN VALUE	6.54
.00	SE (MEAN)	.00
.62	STD DEVIATION	.24
.00	SE (STD DEV)	.00
14.15	MINIMUM	5.57
18.71	MAXIMUM	7.37

SYMMETRY---VETA I	=	-.06
KURTOSIS---VETA II	=	3.13
COEF. OF VARIATION	=	3.7%
NUMBER OF SUBJECTS	=	2208

**MALES**

<u>CM</u>		<u>INCHES</u>
17.45	MEAN VALUE	6.87
.02	SE (MEAN)	.00
.64	STD DEVIATION	.25
.00	SE (STD DEV)	.00
15.36	MINIMUM	6.05
19.63	MAXIMUM	7.73

SYMMETRY---VETA I	=	-.05
KURTOSIS---VETA II	=	2.98
COEF. OF VARIATION	=	3.7%
NUMBER OF SUBJECTS	=	1774

### FREQUENCY TABLE

## FEMALES

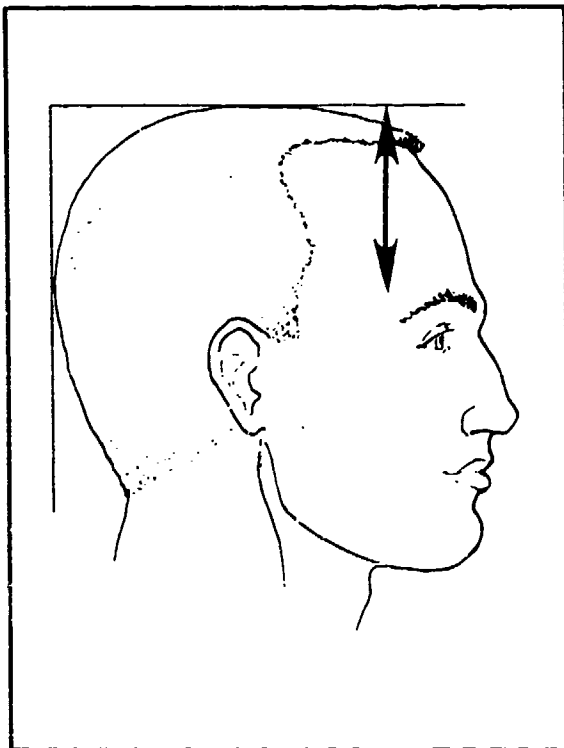
F	FPct	CumF	CumFPct
1	.05	1	.05
1	.05	2	.09
3	.14	5	.23
4	.18	9	.41
6	.27	15	.68
14	.63	29	1.31
35	1.59	64	2.90
53	2.40	117	5.30
119	5.39	236	10.69
175	7.93	411	18.61
202	9.15	613	27.76
233	10.55	846	38.32
320	14.49	1166	52.81
265	12.00	1431	64.81
255	11.55	1686	76.36
193	8.74	1879	85.10
131	5.93	2010	91.03
90	4.08	2100	95.11
60	2.72	2160	97.83
26	1.18	2186	99.00
17	.77	2203	99.77
3	.14	2206	99.91
1	.05	2207	99.95
1	.05	2208	100.00

**MALES**

F	FPct	CumF	CumFPct
2	.11	2	.11
2	.11	4	.23
7	.39	11	.62
16	.90	27	1.52
33	1.86	60	3.38
50	2.82	110	6.20
97	5.47	207	11.67
110	6.20	317	17.87
156	8.79	473	26.66
191	10.77	664	37.43
214	12.06	878	49.49
208	11.72	1086	61.22
213	12.01	1299	73.22
174	9.81	1473	83.03
127	7.16	1600	90.19
76	4.28	1676	94.48
49	2.76	1725	97.24
24	1.35	1749	98.59
13	.73	1762	99.32
4	.23	1766	99.55
6	.34	1772	99.89
2	.11	1774	100.00

## (H17) FRONTOTEMPORALE-TOP OF HEAD

The vertical distance between the frontotemporale landmark on the temporal crest at the side of the frontal, or forehead, bone above the browridges and the horizontal plane tangent to the top of the head is measured.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
6.84	2.69	1ST	7.35	2.89	
7.03	2.77	2ND	7.57	2.98	
7.15	2.82	3RD	7.71	3.03	
7.32	2.88	5TH	7.89	3.11	
7.57	2.98	10TH	8.15	3.21	
7.74	3.05	15TH	8.33	3.28	
7.87	3.10	20TH	8.46	3.33	
7.98	3.14	25TH	8.58	3.38	
8.08	3.18	30TH	8.68	3.42	
8.17	3.22	35TH	8.78	3.46	
8.25	3.25	40TH	8.87	3.49	
8.33	3.28	45TH	8.96	3.53	
8.41	3.31	50TH	9.04	3.56	
8.49	3.34	55TH	9.13	3.59	
8.57	3.37	60TH	9.21	3.63	
8.65	3.40	65TH	9.30	3.66	
8.73	3.44	70TH	9.40	3.70	
8.82	3.47	75TH	9.50	3.74	
8.92	3.51	80TH	9.62	3.79	
9.04	3.56	85TH	9.75	3.84	
9.20	3.62	90TH	9.92	3.91	
9.44	3.72	95TH	10.18	4.01	
9.60	3.78	97TH	10.34	4.07	
9.73	3.83	98TH	10.46	4.12	
9.95	3.92	99TH	10.65	4.19	

# FRONTOTEMPORALE-TOP OF HEAD

## FEMALES

CM		INCHES
8.40	MEAN VALUE	3.31
.00	SE(MEAN)	.00
.64	STD DEVIATION	.25
.00	SE(STD DEV)	.00
6.18	MINIMUM	2.43
10.84	MAXIMUM	4.27

SYMMETRY---VETA I = -.04  
 KURTOSIS---VETA II = 3.28  
 COEF. OF VARIATION = 7.7%  
 NUMBER OF SUBJECTS = 2208

## MALES

CM		INCHES
9.04	MEAN VALUE	3.56
.02	SE(MEAN)	.00
.69	STD DEVIATION	.27
.00	SE(STD DEV)	.00
6.77	MINIMUM	2.66
11.46	MAXIMUM	4.51

SYMMETRY---VETA I = -.05  
 KURTOSIS---VETA II = 3.05  
 COEF. OF VARIATION = 7.7%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
2	.09	2	.09
0	.00	2	.09
2	.09	4	.18
5	.23	9	.41
2	.09	11	.50
6	.27	17	.77
5	.23	22	1.00
15	.68	37	1.68
14	.63	51	2.31
13	.59	64	2.90
20	.91	84	3.80
29	1.31	113	5.12
41	1.86	154	6.97
56	2.54	210	9.51
55	2.49	265	12.00
65	2.94	330	14.95
91	4.12	421	19.07
97	4.39	518	23.46
103	4.66	621	28.13
117	5.30	738	33.42
141	6.39	879	39.81
143	6.48	1022	46.29
148	6.70	1170	52.99
130	5.89	1300	58.88
133	6.02	1433	64.90
141	6.39	1574	71.29
109	4.94	1683	76.22
101	4.57	1784	80.80
101	4.57	1885	85.37
76	3.44	1961	88.81
54	2.45	2015	91.26
49	2.22	2064	93.48
40	1.81	2104	95.29
24	1.09	2128	96.38
25	1.13	2153	97.51
17	.77	2170	98.28
7	.32	2177	98.60
7	.32	2184	98.91
10	.45	2194	99.37
2	.09	2196	99.46
7	.32	2203	99.77
1	.05	2204	99.82
1	.05	2205	99.86
1	.05	2206	99.91
0	.00	2206	99.91
0	.00	2206	99.91
2	.09	2208	100.00

### CENTIMETERS

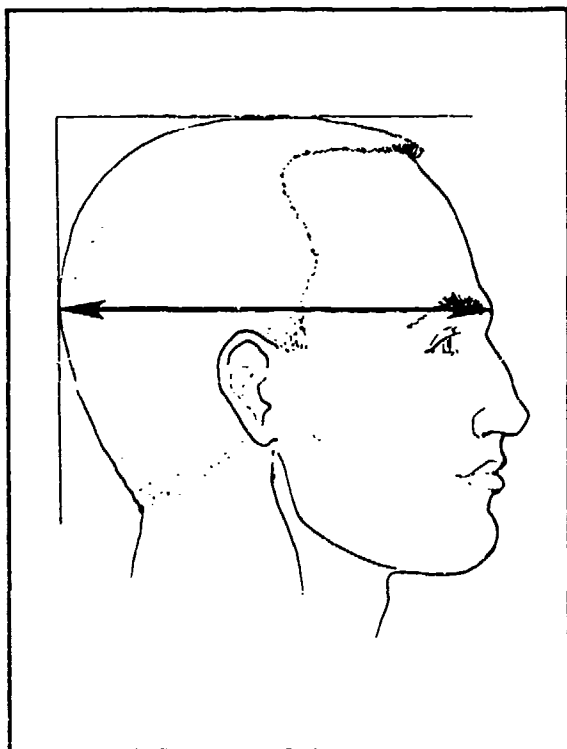
6.15 -	6.25
6.25 -	6.35
6.35 -	6.45
6.45 -	6.55
6.55 -	6.65
6.65 -	6.75
6.75 -	6.85
6.85 -	6.95
6.95 -	7.05
7.05 -	7.15
7.15 -	7.25
7.25 -	7.35
7.35 -	7.45
7.45 -	7.55
7.55 -	7.65
7.65 -	7.75
7.75 -	7.85
7.85 -	7.95
7.95 -	8.05
8.05 -	8.15
8.15 -	8.25
8.25 -	8.35
8.35 -	8.45
8.45 -	8.55
8.55 -	8.65
8.65 -	8.75
8.75 -	8.85
8.85 -	8.95
8.95 -	9.05
9.05 -	9.15
9.15 -	9.25
9.25 -	9.35
9.35 -	9.45
9.45 -	9.55
9.55 -	9.65
9.65 -	9.75
9.75 -	9.85
9.85 -	9.95
9.95 -	10.05
10.05 -	10.15
10.15 -	10.25
10.25 -	10.35
10.35 -	10.45
10.45 -	10.55
10.55 -	10.65
10.65 -	10.75
10.75 -	10.85
10.85 -	10.95
10.95 -	11.05
11.05 -	11.15
11.15 -	11.25
11.25 -	11.35
11.35 -	11.45
11.45 -	11.55

### MALES

F	FPct	CumF	CumFPct
3	.17	3	.17
1	.06	4	.23
1	.06	5	.28
5	.28	10	.56
3	.17	13	.73
3	.17	16	.90
8	.45	24	1.35
5	.28	29	1.63
17	.96	46	2.59
11	.62	57	3.21
26	1.47	83	4.68
20	1.13	103	5.81
34	1.92	137	7.72
39	2.20	176	9.92
47	2.65	223	12.57
52	2.93	275	15.50
76	4.28	351	19.79
73	4.11	424	23.90
82	4.62	506	28.52
90	5.07	596	33.60
88	4.96	684	38.56
110	6.20	794	44.76
94	5.30	888	50.06
108	6.09	996	56.14
118	6.65	1114	62.80
91	5.13	1205	67.93
78	4.40	1283	72.32
75	4.23	1358	76.55
78	4.40	1436	80.95
67	3.78	1503	84.72
54	3.04	1557	87.77
42	2.37	1599	90.14
55	3.10	1654	93.24
30	1.69	1684	94.93
20	1.13	1704	96.05
23	1.30	1727	97.35
14	.79	1741	98.14
6	.34	1747	98.48
9	.51	1756	98.99
4	.23	1760	99.21
7	.39	1767	99.61
4	.23	1771	99.83
1	.06	1772	99.89
0	.00	1772	99.89
1	.06	1773	99.94
0	.00	1773	99.94
0	.00	1773	99.94
1	.06	1774	100.00

## (H18) GLABELLA-BACK OF HEAD

The horizontal distance between the glabella landmark on the forehead between the eyebrows and the vertical plane tangent to the back of the head is measured.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
17.53	6.90	1ST	18.25	7.19
17.71	6.97	2ND	18.45	7.26
17.83	7.02	3RD	18.58	7.31
17.99	7.08	5TH	18.76	7.39
18.24	7.18	10TH	19.04	7.50
18.41	7.25	15TH	19.23	7.57
18.55	7.30	20TH	19.38	7.63
18.66	7.35	25TH	19.51	7.68
18.76	7.39	30TH	19.62	7.72
18.86	7.42	35TH	19.72	7.76
18.94	7.46	40TH	19.82	7.80
19.03	7.49	45TH	19.91	7.84
19.11	7.52	50TH	19.99	7.87
19.19	7.56	55TH	20.08	7.91
19.27	7.59	60TH	20.17	7.94
19.36	7.62	65TH	20.25	7.97
19.45	7.66	70TH	20.35	8.01
19.54	7.69	75TH	20.44	8.05
19.65	7.74	80TH	20.56	8.09
19.77	7.79	85TH	20.68	8.14
19.93	7.85	90TH	20.85	8.21
20.17	7.94	95TH	21.11	8.31
20.34	8.01	97TH	21.30	8.39
20.46	8.05	98TH	21.45	8.44
20.66	8.14	99TH	21.70	8.54

# GLABELLA-BACK OF HEAD

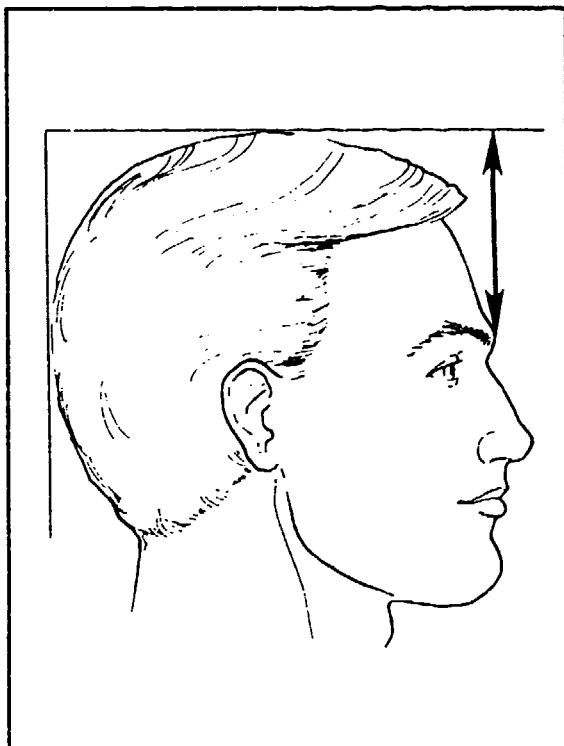
FEMALES			
CM		INCHES	
19.10	MEAN VALUE	7.52	
.00	SE (MEAN)	.00	
.66	STD DEVIATION	.26	
.00	SE (STD DEV)	.00	
16.16	MINIMUM	6.36	
21.12	MAXIMUM	8.32	
SYMMETRY---VETA I = -.11			
KURTOSIS---VETA II = 3.22			
COEF. OF VARIATION = 3.5%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
19.97	MEAN VALUE	7.86	
.02	SE (MEAN)	.00	
.72	STD DEVIATION	.28	
.00	SE (STD DEV)	.00	
17.78	MINIMUM	7.00	
22.35	MAXIMUM	8.80	
SYMMETRY---VETA I = -.06			
KURTOSIS---VETA II = 3.11			
COEF. OF VARIATION = 3.6%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	16.05 -	16.25						
0	.00	1	.05	16.25 -	16.45						
1	.05	2	.09	16.45 -	16.65						
1	.05	3	.14	16.65 -	16.85						
3	.14	6	.27	16.85 -	17.05						
1	.05	7	.32	17.05 -	17.25						
9	.41	16	.72	17.25 -	17.45						
13	.59	29	1.31	17.45 -	17.65						
42	1.90	71	3.22	17.65 -	17.85	4	.23	4	.23		
60	2.72	131	5.93	17.85 -	18.05	6	.34	10	.56		
94	4.26	225	10.19	18.05 -	18.25	8	.45	18	1.01		
129	5.84	354	16.03	18.25 -	18.45	15	.85	33	1.86		
179	8.11	533	24.14	18.45 -	18.65	23	1.30	56	3.16		
225	10.19	758	34.33	18.65 -	18.85	59	3.33	115	6.48		
267	12.09	1025	46.42	18.85 -	19.05	73	4.11	188	10.60		
259	11.73	1284	58.15	19.05 -	19.25	101	5.69	289	16.29		
246	11.14	1530	69.29	19.25 -	19.45	130	7.33	419	23.62		
232	10.51	1762	79.80	19.45 -	19.65	139	7.84	558	31.45		
162	7.34	1924	87.14	19.65 -	19.85	172	9.70	730	41.15		
130	5.89	2054	93.03	19.85 -	20.05	196	11.05	926	52.20		
66	2.99	2120	96.01	20.05 -	20.25	220	12.40	1146	64.60		
43	1.95	2163	97.96	20.25 -	20.45	185	10.43	1331	75.03		
21	.95	2184	98.91	20.45 -	20.65	141	7.95	1472	82.98		
15	.68	2199	99.59	20.65 -	20.85	116	6.54	1588	89.52		
5	.23	2204	99.82	20.85 -	21.05	83	4.68	1671	94.19		
4	.18	2208	100.00	21.05 -	21.25	43	2.42	1714	96.62		
				21.25 -	21.45	28	1.58	1742	98.20		
				21.45 -	21.65	12	.68	1754	98.87		
				21.65 -	21.85	4	.23	1758	99.10		
				21.85 -	22.05	10	.56	1768	99.66		
				22.05 -	22.25	4	.23	1772	99.89		
				22.25 -	22.45	2	.11	1774	100.00		

## (H19) GLABELLA-TOP OF HEAD

The vertical distance between the glabella landmark on the forehead between the eyebrows and the horizontal plane tangent to the top of the head is measured.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
7.31	2.88	1ST	7.92	3.12	
7.47	2.94	2ND	8.13	3.20	
7.58	2.99	3RD	8.26	3.25	
7.73	3.04	5TH	8.43	3.32	
7.96	3.14	10TH	8.69	3.42	
8.12	3.20	15TH	8.97	3.49	
8.25	3.25	20TH	9.01	3.55	
8.36	3.29	25TH	9.13	3.60	
8.46	3.33	30TH	9.24	3.64	
8.55	3.37	35TH	9.34	3.68	
8.64	3.40	40TH	9.44	3.72	
8.72	3.43	45TH	9.53	3.75	
8.81	3.47	50TH	9.62	3.79	
8.89	3.50	55TH	9.72	3.82	
8.98	3.54	60TH	9.81	3.86	
9.07	3.57	65TH	9.90	3.90	
9.17	3.61	70TH	10.01	3.94	
9.28	3.65	75TH	10.12	3.98	
9.40	3.70	80TH	10.24	4.03	
9.54	3.75	85TH	10.38	4.09	
9.72	3.83	90TH	10.56	4.16	
10.01	3.94	95TH	10.82	4.26	
10.20	4.02	97TH	10.99	4.33	
10.35	4.07	98TH	11.11	4.37	
10.59	4.17	99TH	11.29	4.45	



# GLABELLA-TOP OF HEAD

## FEMALES

<u>CM</u>		<u>INCHES</u>
8.83	MEAN VALUE	3.48
.00	SE (MEAN)	.00
.69	STD DEVIATION	.27
.00	SE (STD DEV)	.00
6.68	MINIMUM	2.63
11.63	MAXIMUM	4.58

SYMMETRY---VETA I = .20  
 KURTOSIS---VETA II = 3.19  
 COEF. OF VARIATION = 7.8%  
 NUMBER OF SUBJECTS = 2208

## MALES

<u>CM</u>		<u>INCHES</u>
9.62	MEAN VALUE	3.79
.02	SE (MEAN)	.00
.73	STD DEVIATION	.29
.00	SE (STD DEV)	.00
7.36	MINIMUM	2.90
12.30	MAXIMUM	4.84

SYMMETRY---VETA I = .02  
 KURTOSIS---VETA II = 3.07  
 COEF. OF VARIATION = 7.6%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
5	.23	5	.23
3	.14	8	.36
5	.23	13	.59
29	1.31	42	1.90
43	1.95	85	3.85
73	3.31	158	7.16
102	4.62	260	11.78
172	7.79	432	19.57
224	10.14	656	29.71
252	11.41	908	41.12
243	11.01	1151	52.13
241	10.91	1392	63.04
226	10.24	1618	73.28
191	8.65	1809	81.93
140	6.34	1949	88.27
104	4.71	2053	92.98
62	2.81	2115	95.79
33	1.49	2148	97.28
32	1.45	2180	98.73
10	.45	2190	99.18
10	.45	2200	99.64
5	.23	2205	99.86
0	.00	2205	99.86
2	.09	2207	99.95
1	.05	2208	100.00

### CENTIMETERS

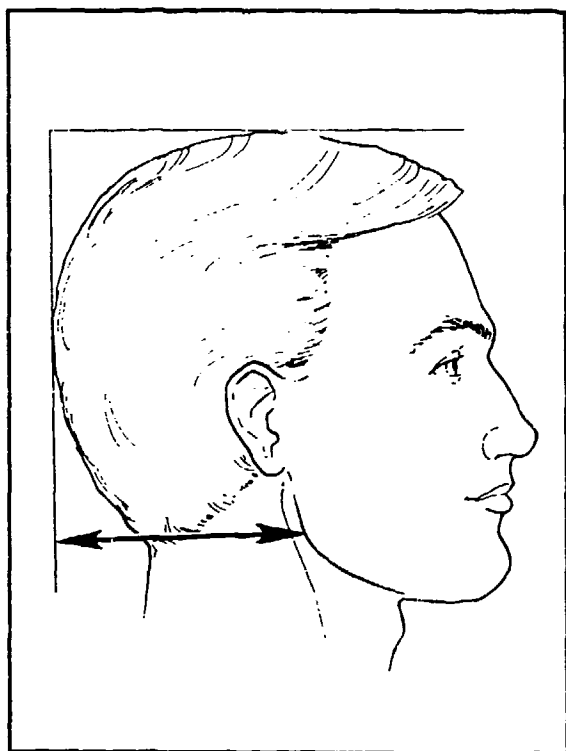
6.65 - 6.85
6.85 - 7.05
7.05 - 7.25
7.25 - 7.45
7.45 - 7.65
7.65 - 7.85
7.85 - 8.05
8.05 - 8.25
8.25 - 8.45
8.45 - 8.65
8.65 - 8.85
8.85 - 9.05
9.05 - 9.25
9.25 - 9.45
9.45 - 9.65
9.65 - 9.85
9.85 - 10.05
10.05 - 10.25
10.25 - 10.45
10.45 - 10.65
10.65 - 10.85
10.85 - 11.05
11.05 - 11.25
11.25 - 11.45
11.45 - 11.65
11.65 - 11.85
11.85 - 12.05
12.05 - 12.25
12.25 - 12.45

### MALES

F	FPct	CumF	CumFPct
3	.17	3	.17
6	.34	9	.51
4	.23	13	.73
16	.90	29	1.63
20	1.13	49	2.76
36	2.03	85	4.79
62	3.49	147	8.29
91	5.13	238	13.42
148	8.34	386	21.76
157	8.85	543	30.61
187	10.54	730	41.15
183	10.32	913	51.47
186	10.48	1099	61.95
162	9.13	1261	71.08
160	9.02	1421	80.10
126	7.10	1547	87.20
88	4.96	1635	92.16
57	3.21	1692	95.38
41	2.31	1733	97.69
22	1.24	1755	98.93
5	.28	1760	99.21
8	.45	1768	99.66
4	.23	1772	99.89
0	.00	1772	99.89
0	.00	1772	99.89
2	.11	1774	100.00

## (H20) GONION-BACK OF HEAD

The horizontal distance between the gonion landmark on the corner of the jaw and the vertical plane tangent to the back of the head is measured.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
9.05	3.56	1ST	9.94	3.91	
9.21	3.63	2ND	10.15	4.00	
9.32	3.67	3RD	10.28	4.05	
9.48	3.73	5TH	10.47	4.12	
9.73	3.83	10TH	10.76	4.24	
9.91	3.90	15TH	10.96	4.32	
10.05	3.96	20TH	11.12	4.38	
10.17	4.00	25TH	11.25	4.43	
10.27	4.04	30TH	11.37	4.48	
10.37	4.08	35TH	11.47	4.52	
10.46	4.12	40TH	11.58	4.56	
10.55	4.15	45TH	11.67	4.60	
10.64	4.19	50TH	11.77	4.63	
10.73	4.22	55TH	11.87	4.67	
10.82	4.26	60TH	11.96	4.71	
10.91	4.29	65TH	12.06	4.75	
11.00	4.33	70TH	12.16	4.79	
11.10	4.37	75TH	12.27	4.83	
11.22	4.42	80TH	12.40	4.88	
11.36	4.47	85TH	12.54	4.94	
11.53	4.54	90TH	12.73	5.01	
11.81	4.65	95TH	13.01	5.12	
12.00	4.72	97TH	13.21	5.20	
12.14	4.78	98TH	13.35	5.26	
12.40	4.88	99TH	13.60	5.35	

# GONION-BACK OF HEAD

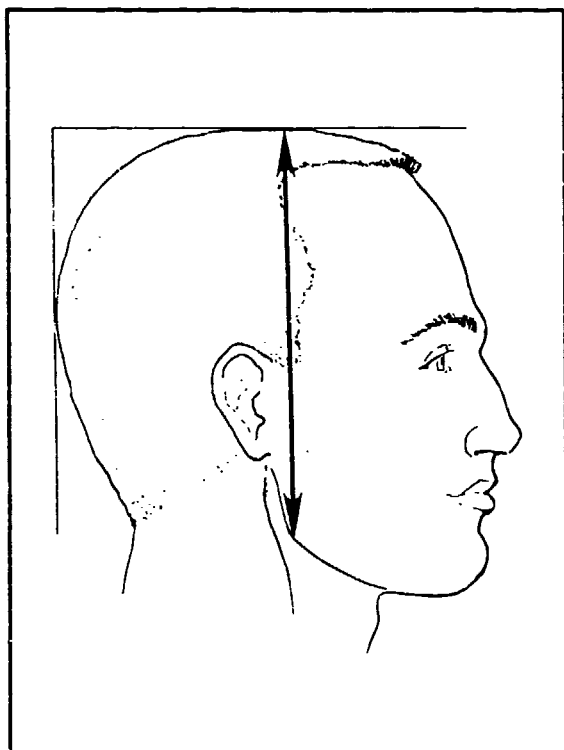
FEMALES			
CM		INCHES	
10.64	MEAN VALUE	4.19	
.02	SE(MEAN)	.00	
.70	STD DEVIATION	.28	
.00	SE(STD DEV)	.00	
8.34	MINIMUM	3.28	
13.13	MAXIMUM	5.17	
SYMMETRY---VETA I = .10			
KURTOSIS---VETA II = 3.10			
COEF. OF VARIATION = 6.6%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
11.76	MEAN VALUE	4.63	
.02	SE(MEAN)	.00	
.77	STD DEVIATION	.30	
.00	SE(STD DEV)	.00	
8.85	MINIMUM	3.48	
14.45	MAXIMUM	5.69	
SYMMETRY---VETA I = -.02			
KURTOSIS---VETA II = 3.17			
COEF. OF VARIATION = 6.6%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE									
FEMALES					MALES				
F	FPct	CumF	CumFPct	CENTIMETERS	F	FPct	CumF	CumFPct	
2	.09	2	.09	8.25 - 8.45					
3	.14	5	.23	8.45 - 8.65					
5	.23	10	.45	8.65 - 8.85					
12	.54	22	1.00	8.85 - 9.05	2	.11	2	.11	
28	1.27	50	2.26	9.05 - 9.25	1	.06	3	.17	
55	2.49	105	4.76	9.25 - 9.45	1	.06	4	.23	
65	2.94	170	7.70	9.45 - 9.65	1	.06	5	.28	
114	5.16	284	12.86	9.65 - 9.85	6	.34	11	.62	
161	7.29	445	20.15	9.85 - 10.05	15	.85	26	1.47	
197	8.92	642	29.08	10.05 - 10.25	19	1.07	45	2.54	
251	11.37	893	40.44	10.25 - 10.45	45	2.54	90	5.07	
226	10.24	1119	50.68	10.45 - 10.65	37	2.09	127	7.16	
252	11.41	1371	62.09	10.65 - 10.85	67	3.78	194	10.94	
230	10.42	1601	72.51	10.85 - 11.05	117	6.60	311	17.53	
191	8.65	1792	81.16	11.05 - 11.25	126	7.10	437	24.63	
148	6.70	1940	87.86	11.25 - 11.45	162	9.13	599	33.77	
102	4.62	2042	92.48	11.45 - 11.65	177	9.98	776	43.74	
69	3.13	2111	95.61	11.65 - 11.85	193	10.88	969	54.62	
41	1.86	2152	97.46	11.85 - 12.05	187	10.54	1156	65.16	
27	1.22	2179	98.69	12.05 - 12.25	159	8.96	1315	74.13	
7	.32	2186	99.00	12.25 - 12.45	126	7.10	1441	81.23	
14	.63	2200	99.64	12.45 - 12.65	114	6.43	1555	87.66	
4	.18	2204	99.82	12.65 - 12.85	82	4.62	1637	92.28	
2	.09	2206	99.91	12.85 - 13.05	56	3.16	1693	95.43	
2	.09	2208	100.00	13.05 - 13.25	36	2.03	1729	97.46	
				13.25 - 13.45	17	.96	1746	98.42	
				13.45 - 13.65	14	.79	1760	99.21	
				13.65 - 13.85	7	.39	1767	99.61	
				13.85 - 14.05	3	.17	1770	99.77	
				14.05 - 14.25	3	.17	1773	99.94	
				14.25 - 14.45	0	.00	1773	99.94	
				14.45 - 14.65	1	.06	1774	100.00	

## (H21) GONION-TOP OF HEAD

The vertical distance between the gonion landmark on the corner of the jaw and the horizontal plane tangent to the top of the head is measured.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
16.70	6.57	1ST	17.97	7.08	
16.86	6.64	2ND	18.21	7.17	
16.97	6.68	3RD	18.35	7.22	
17.12	6.74	5TH	18.54	7.30	
17.35	6.83	10TH	18.82	7.41	
17.51	6.89	15TH	19.01	7.48	
17.63	6.94	20TH	19.15	7.54	
17.74	6.98	25TH	19.28	7.59	
17.84	7.02	30TH	19.39	7.63	
17.93	7.06	35TH	19.49	7.67	
18.01	7.09	40TH	19.59	7.71	
18.10	7.12	45TH	19.69	7.75	
18.18	7.16	50TH	19.78	7.79	
18.26	7.19	55TH	19.88	7.83	
18.34	7.22	60TH	19.97	7.86	
18.43	7.26	65TH	20.07	7.90	
18.52	7.29	70TH	20.18	7.94	
18.62	7.33	75TH	20.30	7.99	
18.73	7.38	80TH	20.43	8.04	
18.87	7.43	85TH	20.58	8.10	
19.04	7.50	90TH	20.78	8.18	
19.31	7.60	95TH	21.09	8.30	
19.49	7.67	97TH	21.29	8.38	
19.63	7.73	98TH	21.44	8.44	
19.86	7.82	99TH	21.68	8.54	

# GONION-TOP OF HEAD

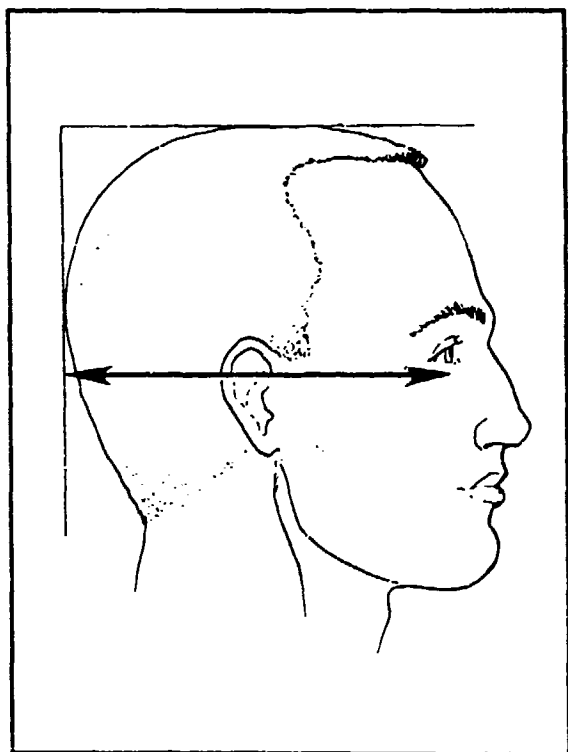
FEM LES			
CM		INCHES	
18.19	MEAN VALUE	7.16	
.00	SE (MEAN)	.00	
.67	STD DEVIATION	.26	
.00	SE (STD DEV)	.00	
16.17	MINIMUM	6.37	
21.31	MAXIMUM	8.39	
SYMMETRY---VETA I = .20			
KURTOSIS---VETA II = 3.28			
COEF. OF VARIATION = 3.7%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
19.79	MEAN VALUE	7.79	
.02	SE (MEAN)	.00	
.77	STD DEVIATION	.30	
.00	SE (STD DEV)	.00	
17.21	MINIMUM	6.78	
22.47	MAXIMUM	8.85	
SYMMETRY---VETA I = .05			
KURTOSIS---VETA II = 3.15			
COEF. OF VARIATION = 3.9%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
4	.18	4	.18	16.15	- 16.35						
6	.27	10	.45	16.35	- 16.55						
18	.82	28	1.27	16.55	- 16.75						
27	1.22	55	2.49	16.75	- 16.95						
64	2.90	119	5.39	16.95	- 17.15						
112	5.07	231	10.46	17.15	- 17.35	2	.11	2	.11		
145	6.57	376	17.03	17.35	- 17.55	1	.06	3	.17		
193	8.74	569	25.77	17.55	- 17.75	8	.45	11	.62		
236	10.69	805	36.46	17.75	- 17.95	3	.17	14	.79		
267	12.09	1072	48.55	17.95	- 18.15	14	.79	28	1.58		
244	11.05	1316	59.60	18.15	- 18.35	27	1.52	55	3.10		
260	11.78	1576	71.38	18.35	- 18.55	34	1.92	89	5.02		
217	9.83	1793	81.20	18.55	- 18.75	61	3.44	150	8.46		
149	6.75	1942	87.95	18.75	- 18.95	76	4.28	226	12.74		
93	4.21	2035	92.16	18.95	- 19.15	127	7.16	353	19.90		
72	3.26	2107	95.43	19.15	- 19.35	145	8.17	498	28.07		
44	1.99	2151	97.42	19.35	- 19.55	180	10.15	678	38.22		
27	1.22	2178	98.64	19.55	- 19.75	180	10.15	858	48.37		
11	.50	2189	99.14	19.75	- 19.95	170	9.58	1028	57.95		
7	.32	2196	99.46	19.95	- 20.15	176	9.92	1204	67.87		
9	.41	2205	99.86	20.15	- 20.35	172	9.70	1376	77.56		
0	.00	2205	99.86	20.35	- 20.55	115	6.48	1491	84.05		
1	.05	2206	99.91	20.55	- 20.75	102	5.75	1593	89.80		
1	.05	2207	99.95	20.75	- 20.95	64	3.61	1657	93.40		
0	.00	2207	99.95	20.95	- 21.15	43	2.42	1700	95.83		
1	.05	2208	100.00	21.15	- 21.35	25	1.41	1725	97.24		
				21.35	- 21.55	26	1.47	1751	98.70		
				21.55	- 21.75	10	.56	1761	99.27		
				21.75	- 21.95	6	.34	1767	99.61		
				21.95	- 22.15	4	.23	1771	99.83		
				22.15	- 22.35	2	.11	1773	99.94		
				22.35	- 22.55	1	.06	1774	100.00		

## (H22) INFRAORBITALE-BACK OF HEAD

The horizontal distance between the infraorbitale landmark on the bony eye socket under the eye and the vertical plane tangent to the back of the head is measured.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
15.99	6.29	1ST	16.49	6.49
16.20	6.38	2ND	16.64	6.55
16.33	6.43	3RD	16.75	6.60
16.50	6.49	5TH	16.91	6.66
16.75	6.59	10TH	17.17	6.76
16.91	6.66	15TH	17.36	6.83
17.04	6.71	20TH	17.50	6.89
17.16	6.75	25TH	17.62	6.94
17.26	6.79	30TH	17.73	6.98
17.35	6.83	35TH	17.83	7.02
17.44	6.86	40TH	17.93	7.06
17.52	6.90	45TH	18.02	7.09
17.61	6.93	50TH	18.11	7.13
17.69	6.97	55TH	18.19	7.16
17.78	7.00	60TH	18.28	7.20
17.87	7.04	65TH	18.37	7.23
17.97	7.07	70TH	18.46	7.27
18.07	7.11	75TH	18.56	7.31
18.19	7.16	80TH	18.67	7.35
18.32	7.21	85TH	18.79	7.40
18.50	7.28	90TH	18.95	7.46
18.76	7.39	95TH	19.20	7.56
18.93	7.45	97TH	19.36	7.62
19.05	7.50	98TH	19.50	7.68
19.24	7.57	99TH	19.72	7.76

# INFRAORBITALE-BACK OF HEAD

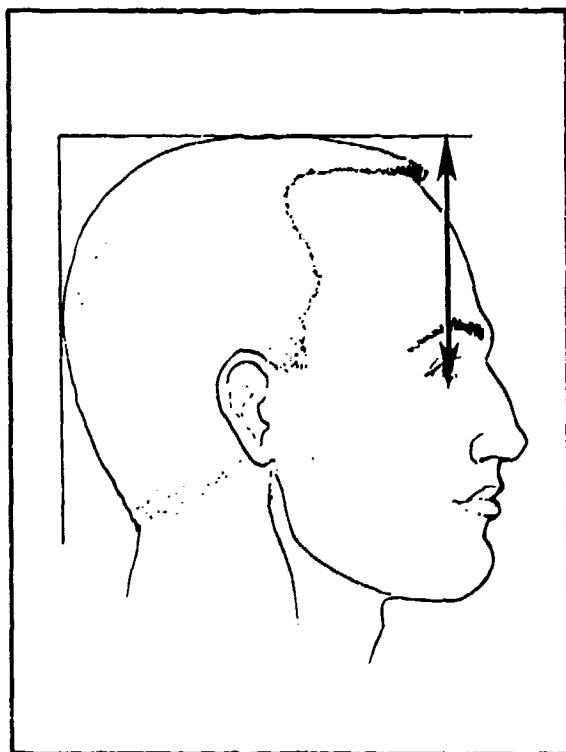
FEMALES			
CM		INCHES	
17.61	MEAN VALUE	6.93	
.00	SE (MEAN)	.00	
.69	STD DEVIATION	.27	
.00	SE (STD DEV)	.00	
15.03	MINIMUM	5.92	
19.61	MAXIMUM	7.72	
SYMMETRY---VETA I = -.03			
KURTOSIS---VETA II = 3.14			
COEF. OF VARIATION = 3.9%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
18.08	MEAN VALUE	7.12	
.02	SE (MEAN)	.00	
.70	STD DEVIATION	.27	
.00	SE (STD DEV)	.00	
15.92	MINIMUM	6.27	
20.69	MAXIMUM	8.15	
SYMMETRY---VETA I = .00			
KURTOSIS---VETA II = 3.09			
COEF. OF VARIATION = 3.8%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	14.85	- 15.05						
3	.14	4	.18	15.05	- 15.25						
3	.14	7	.32	15.25	- 15.45						
3	.14	10	.45	15.45	- 15.65						
3	.14	13	.59	15.65	- 15.85						
14	.63	27	1.22	15.85	- 16.05	2	.11	2	.11		
24	1.09	51	2.31	16.05	- 16.25	4	.23	6	.34		
43	1.95	94	4.26	16.25	- 16.45	8	.45	14	.79		
78	3.53	172	7.79	16.45	- 16.65	21	1.18	35	1.97		
128	5.80	300	13.59	16.65	- 16.85	37	2.09	72	4.06		
145	6.57	445	20.15	16.85	- 17.05	62	3.49	134	7.55		
204	9.24	649	29.39	17.05	- 17.25	75	4.23	209	11.78		
241	10.91	890	40.31	17.25	- 17.45	129	7.27	338	19.05		
264	11.96	1154	52.26	17.45	- 17.65	120	6.76	458	25.82		
263	11.91	1417	64.18	17.65	- 17.85	166	9.36	624	35.17		
215	9.74	1632	73.91	17.85	- 18.05	203	11.44	827	46.62		
200	9.06	1832	82.97	18.05	- 18.25	214	12.06	1041	58.68		
119	5.39	1951	88.36	18.25	- 18.45	219	12.34	1260	71.03		
113	5.12	2064	93.48	18.45	- 18.65	142	8.00	1402	79.03		
58	2.63	2122	96.11	18.65	- 18.85	133	7.50	1535	86.53		
45	2.04	2167	98.14	18.85	- 19.05	102	5.75	1637	92.28		
20	.91	2187	99.05	19.05	- 19.25	61	3.44	1698	95.72		
12	.54	2199	99.59	19.25	- 19.45	37	2.09	1735	97.80		
9	.41	2208	100.00	19.45	- 19.65	16	.90	1751	98.70		
				19.65	- 19.85	11	.62	1762	99.32		
				19.85	- 20.05	3	.17	1765	99.49		
				20.05	- 20.25	4	.23	1769	99.72		
				20.25	- 20.45	4	.23	1773	99.94		
				20.45	- 20.65	0	.00	1773	99.94		
				20.65	- 20.85	1	.06	1774	100.00		

## (H23) INFRAORBITALE-TOP OF HEAD

The vertical distance between the infraorbitale landmark on the bony eye socket under the eye and the horizontal plane tangent to the top of the head is measured.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
11.02	4.34	1ST	11.70	4.61	
11.20	4.41	2ND	11.88	4.68	
11.31	4.45	3RD	11.99	4.72	
11.46	4.51	5TH	12.13	4.78	
11.68	4.60	10TH	12.35	4.86	
11.82	4.65	15TH	12.49	4.92	
11.93	4.70	20TH	12.60	4.96	
12.03	4.74	25TH	12.70	5.00	
12.11	4.77	30TH	12.78	5.03	
12.19	4.80	35TH	12.86	5.06	
12.26	4.83	40TH	12.93	5.09	
12.33	4.86	45TH	13.00	5.12	
12.41	4.88	50TH	13.07	5.15	
12.48	4.91	55TH	13.14	5.17	
12.55	4.94	60TH	13.21	5.20	
12.62	4.97	65TH	13.29	5.23	
12.70	5.00	70TH	13.37	5.26	
12.79	5.03	75TH	13.45	5.30	
12.88	5.07	80TH	13.55	5.34	
13.00	5.12	85TH	13.67	5.38	
13.15	5.18	90TH	13.82	5.44	
13.38	5.27	95TH	14.04	5.53	
13.54	5.33	97TH	14.20	5.59	
13.66	5.38	98TH	14.31	5.63	
13.86	5.46	99TH	14.49	5.71	



# INFRAORBITALE-TOP OF HEAD

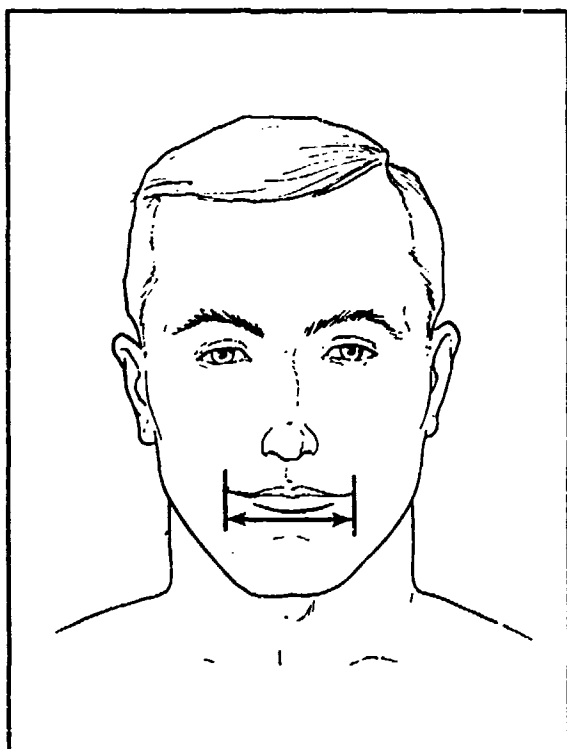
FEMALES			
CM		INCHES	
12.41	MEAN VALUE	4.89	
.00	SE (MEAN)	.00	
.58	STD DEVIATION	.23	
.00	SE (STD DEV)	.00	
10.60	MINIMUM	4.17	
14.95	MAXIMUM	5.89	
SYMMETRY---VETA I = .09			
KURTOSIS---VETA II = 3.31			
COEF. OF VARIATION = 4.7%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
13.08	MEAN VALUE	5.15	
.00	SE (MEAN)	.00	
.58	STD DEVIATION	.23	
.00	SE (STD DEV)	.00	
11.13	MINIMUM	4.38	
15.14	MAXIMUM	5.96	
SYMMETRY---VETA I = .04			
KURTOSIS---VETA II = 3.19			
COEF. OF VARIATION = 4.4%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	10.55 -	10.65						
5	.23	6	.27	10.65 -	10.75						
2	.09	8	.36	10.75 -	10.85						
7	.32	15	.68	10.85 -	10.95						
9	.41	24	1.09	10.95 -	11.05						
12	.54	36	1.63	11.05 -	11.15	1	.06	1	.06		
19	.86	55	2.49	11.15 -	11.25	2	.11	3	.17		
18	.82	73	3.31	11.25 -	11.35	2	.11	5	.28		
34	1.54	107	4.85	11.35 -	11.45	3	.17	8	.45		
41	1.86	148	6.70	11.45 -	11.55	2	.11	10	.56		
56	2.54	204	9.24	11.55 -	11.65	6	.34	16	.90		
72	3.26	276	12.50	11.65 -	11.75	7	.39	23	1.30		
81	3.67	357	16.17	11.75 -	11.85	3	.17	26	1.47		
107	4.85	464	21.01	11.85 -	11.95	14	.79	40	2.25		
107	4.85	571	25.86	11.95 -	12.05	28	1.58	68	3.83		
146	6.61	717	32.47	12.05 -	12.15	26	1.47	94	5.30		
135	6.11	852	38.59	12.15 -	12.25	38	2.14	132	7.44		
158	7.16	1010	45.74	12.25 -	12.35	54	3.04	186	10.48		
151	6.84	1161	52.58	12.35 -	12.45	53	2.99	239	13.47		
159	7.20	1320	59.78	12.45 -	12.55	53	4.68	322	18.15		
155	7.02	1475	66.80	12.55 -	12.65	68	4.96	410	23.11		
159	7.20	1634	74.00	12.65 -	12.75	112	6.31	522	29.43		
111	5.03	1745	79.03	12.75 -	12.85	89	5.02	611	34.44		
87	3.94	1832	82.97	12.85 -	12.95	111	6.26	722	40.70		
92	4.17	1924	87.14	12.95 -	13.05	125	7.05	847	47.75		
66	2.99	1990	90.13	13.05 -	13.15	133	7.50	980	55.24		
93	2.40	2043	92.53	13.15 -	13.25	117	6.60	1097	61.84		
43	1.95	2086	94.47	13.25 -	13.35	115	6.48	1212	68.32		
32	1.45	2118	95.92	13.35 -	13.45	114	6.43	1326	74.75		
25	1.13	2143	97.06	13.45 -	13.55	92	5.19	1418	79.93		
16	.72	2159	97.78	13.55 -	13.65	73	4.11	1491	84.05		
17	.77	2176	98.55	13.65 -	13.75	67	3.78	1558	87.82		
11	.50	2187	99.05	13.75 -	13.85	55	3.10	1613	90.92		
7	.32	2194	99.37	13.85 -	13.95	50	2.82	1663	93.74		
6	.27	2200	99.64	13.95 -	14.05	25	1.41	1688	95.15		
1	.05	2201	99.68	14.05 -	14.15	26	1.47	1714	96.62		
5	.23	2206	99.91	14.15 -	14.25	19	1.07	1733	97.69		
0	.00	2206	99.91	14.25 -	14.35	13	.73	1746	98.42		
0	.00	2206	99.91	14.35 -	14.45	7	.39	1753	98.82		
0	.00	2206	99.91	14.45 -	14.55	5	.28	1758	99.10		
1	.05	2207	99.95	14.55 -	14.65	5	.28	1763	99.38		
0	.00	2207	99.95	14.65 -	14.75	4	.23	1767	99.61		
0	.00	2207	99.95	14.75 -	14.85	4	.23	1771	99.83		
0	.00	2207	99.95	14.85 -	14.95	0	.00	1771	99.83		
1	.05	2208	100.00	14.95 -	15.05	2	.11	1773	99.94		
				15.05 -	15.15	1	.06	1774	100.00		

## (H24) LIP LENGTH

The straight-line distance between the right and left cheilion landmarks at the corners of the closed mouth is measured.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
4.57	1.80	1ST	4.65	1.83	
4.67	1.84	2ND	4.76	1.87	
4.73	1.86	3RD	4.83	1.90	
4.82	1.90	5TH	4.92	1.94	
4.96	1.95	10TH	5.06	1.99	
5.05	1.99	15TH	5.16	2.03	
5.13	2.02	20TH	5.24	2.06	
5.20	2.05	25TH	5.31	2.09	
5.26	2.07	30TH	5.37	2.12	
5.32	2.10	35TH	5.43	2.14	
5.38	2.12	40TH	5.49	2.16	
5.43	2.14	45TH	5.55	2.18	
5.49	2.16	50TH	5.60	2.20	
5.54	2.18	55TH	5.66	2.23	
5.59	2.20	60TH	5.71	2.25	
5.65	2.23	65TH	5.77	2.27	
5.71	2.25	70TH	5.83	2.30	
5.78	2.27	75TH	5.90	2.32	
5.85	2.30	80TH	5.98	2.35	
5.94	2.34	85TH	6.06	2.39	
6.05	2.38	90TH	6.17	2.43	
6.21	2.44	95TH	6.33	2.49	
6.31	2.48	97TH	6.44	2.53	
6.39	2.52	98TH	6.51	2.56	
6.51	2.56	99TH	6.62	2.61	

# LIP LENGTH

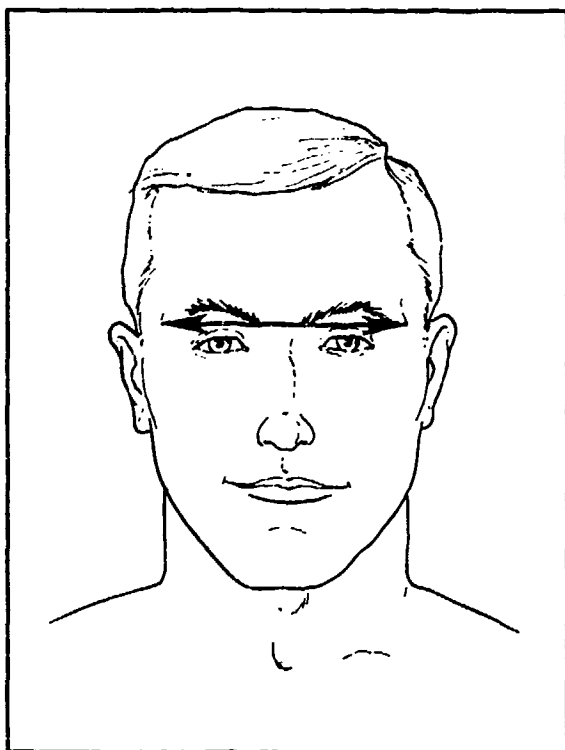
FEMALES			
CM		INCHES	
5.50	MEAN VALUE	2.16	
.00	SE (MEAN)	.00	
.42	STD DEVIATION	.17	
.00	SE (STD DEV)	.00	
4.09	MINIMUM	1.61	
6.94	MAXIMUM	2.73	
SYMMETRY---VETA I = .14			
KURTOSIS---VETA II = 2.93			
COEF. OF VARIATION = 7.7%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
5.61	MEAN VALUE	2.21	
.00	SE (MEAN)	.00	
.43	STD DEVIATION	.17	
.00	SE (STD DEV)	.00	
4.41	MINIMUM	1.74	
7.11	MAXIMUM	2.80	
SYMMETRY---VETA I = .13			
KURTOSIS---VETA II = 2.86			
COEF. OF VARIATION = 7.6%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE									
FEMALES				MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct
1	.05	1	.05	4.05 -	4.15				
1	.05	2	.09	4.15 -	4.25				
2	.09	4	.18	4.25 -	4.35				
6	.27	10	.45	4.35 -	4.45	1	.06	1	.06
9	.41	19	.86	4.45 -	4.55	5	.28	6	.34
15	.68	34	1.54	4.55 -	4.65	7	.39	13	.73
33	1.49	67	3.03	4.65 -	4.75	20	1.13	33	1.86
59	2.67	126	5.71	4.75 -	4.85	29	1.63	62	3.49
95	4.30	221	10.01	4.85 -	4.95	43	2.42	105	5.92
101	4.57	322	14.58	4.95 -	5.05	57	3.21	162	9.13
135	6.11	457	20.70	5.05 -	5.15	85	4.79	247	13.92
156	7.07	613	27.76	5.15 -	5.25	98	5.52	345	19.45
189	8.56	802	36.32	5.25 -	5.35	130	7.33	475	26.78
219	9.92	1021	46.24	5.35 -	5.45	158	8.91	633	35.68
217	9.83	1238	56.07	5.45 -	5.55	177	9.98	810	45.66
197	8.92	1435	64.99	5.55 -	5.65	160	9.02	970	54.68
166	7.52	1601	72.51	5.65 -	5.75	165	9.30	1135	63.98
164	7.43	1765	79.94	5.75 -	5.85	129	7.27	1264	71.25
107	4.85	1872	84.78	5.85 -	5.95	116	6.54	1380	77.79
100	4.53	1972	89.31	5.95 -	6.05	108	6.09	1488	83.88
97	4.39	2069	93.70	6.05 -	6.15	87	4.90	1575	88.78
53	2.40	2122	96.11	6.15 -	6.25	58	3.27	1633	92.05
30	1.36	2152	97.46	6.25 -	6.35	56	3.16	1689	95.21
20	.91	2172	98.37	6.35 -	6.45	37	2.09	1726	97.29
17	.77	2189	99.14	6.45 -	6.55	22	1.24	1748	98.53
7	.32	2196	99.46	6.55 -	6.65	10	.56	1758	99.10
6	.27	2202	99.73	6.65 -	6.75	10	.56	1768	99.66
5	.23	2207	99.95	6.75 -	6.85	2	.11	1770	99.77
1	.05	2208	100.00	6.85 -	6.95	1	.06	1771	99.83
				6.95 -	7.05	2	.11	1773	99.94
				7.05 -	7.15	1	.06	1774	100.00

## (H25) MAXIMUM FRONTAL BREADTH

The straight-line distance between the right and left zygofrontale landmarks at the upper margin of each bony eye socket is measured.



### THE PERCENTILES

#### FEMALES

CM	INCHES
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9.88	3.89
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10.04	3.95
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10.13	3.99
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10.26	4.04
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10.45	4.11
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10.58	4.16
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10.68	4.20
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10.77	4.24
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10.85	4.27
-------	------

10.92	4.30
-------	------

10.99	4.33
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11.05	4.35
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11.12	4.38
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11.19	4.40
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11.26	4.43
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11.33	4.46
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11.40	4.49
-------	------

11.48	4.52
-------	------

11.58	4.56
-------	------

11.69	4.60
-------	------

11.83	4.66
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12.04	4.74
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12.17	4.79
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12.28	4.83
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12.44	4.90
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#### MALES

CM	INCHES
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10.20	4.02
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10.33	4.07
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10.41	4.10
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10.52	4.14
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10.69	4.21
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10.80	4.25
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10.90	4.29
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10.98	4.32
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11.05	4.35
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11.12	4.38
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11.18	4.40
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11.24	4.43
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11.30	4.45
-------	------

11.37	4.48
-------	------

11.43	4.50
-------	------

11.50	4.53
-------	------

11.57	4.56
-------	------

11.65	4.59
-------	------

11.74	4.62
-------	------

11.85	4.67
-------	------

11.99	4.72
-------	------

12.22	4.81
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12.39	4.88
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12.51	4.93
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12.72	5.01
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# MAXIMUM FRONTAL BREADTH

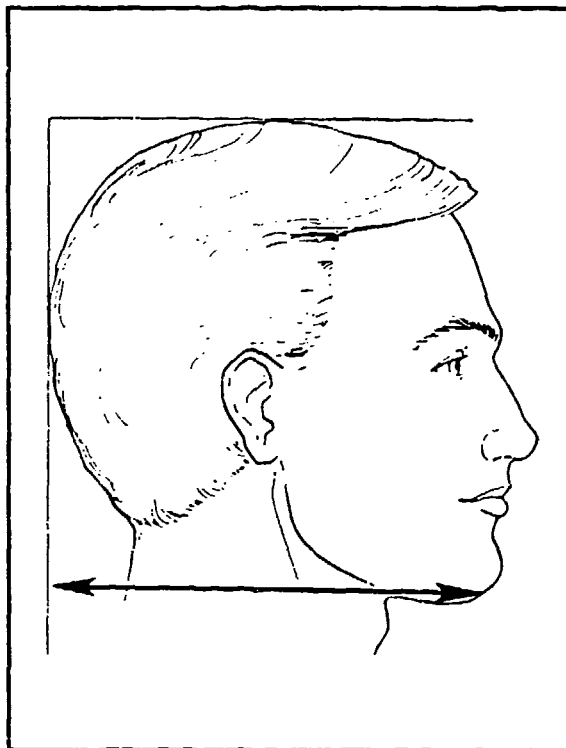
FEMALES			
CM		INCHES	
11.13	MEAN VALUE	4.38	
.00	SE(MEAN)	.00	
.54	STD DEVIATION	.21	
.00	SE(STD DEV)	.00	
9.20	MINIMUM	3.62	
13.42	MAXIMUM	5.28	
SYMMETRY---VETA I = .10			
KURTOSIS---VETA II = 3.11			
COEF. OF VARIATION = 4.8%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
11.33	MEAN VALUE	4.46	
.00	SE(MEAN)	.00	
.52	STD DEVIATION	.20	
.00	SE(STD DEV)	.00	
9.49	MINIMUM	3.74	
13.38	MAXIMUM	5.27	
SYMMETRY---VETA I = .28			
KURTOSIS---VETA II = 3.36			
COEF. OF VARIATION = 4.6%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	9.15 - 9.25		1	.06	1	.06		
0	.00	1	.05	9.25 - 9.35		0	.00	1	.06		
0	.00	1	.05	9.35 - 9.45		0	.00	1	.06		
1	.05	2	.09	9.45 - 9.55		2	.11	3	.17		
1	.05	3	.14	9.55 - 9.65		2	.11	5	.28		
8	.36	11	.50	9.65 - 9.75		3	.17	8	.45		
6	.27	17	.77	9.75 - 9.85		4	.23	12	.62		
10	.45	27	1.22	9.85 - 9.95		16	.90	28	1.58		
20	.91	47	2.13	9.95 - 10.05		8	.45	36	1.03		
24	1.09	71	3.22	10.05 - 10.15		24	1.35	60	3.38		
28	1.27	99	4.48	10.15 - 10.25		39	2.20	99	5.58		
49	2.22	148	6.70	10.25 - 10.35		50	2.82	149	8.40		
59	2.67	207	9.38	10.35 - 10.45		66	3.72	215	12.12		
82	3.71	289	13.09	10.45 - 10.55		92	5.19	307	17.31		
104	4.71	393	17.80	10.55 - 10.65		100	5.64	407	22.94		
133	6.02	526	23.82	10.65 - 10.75		127	7.16	534	30.10		
138	6.25	664	30.07	10.75 - 10.85		143	8.06	677	38.16		
157	7.11	821	37.18	10.85 - 10.95		120	6.76	797	44.93		
163	7.38	984	44.57	10.95 - 11.05		134	7.55	931	52.48		
160	7.25	1144	51.81	11.05 - 11.15		149	8.40	1080	60.88		
166	7.52	1310	59.33	11.15 - 11.25		124	6.99	1204	67.87		
140	6.34	1450	65.67	11.25 - 11.35		107	6.03	1311	73.90		
147	6.66	1597	72.33	11.35 - 11.45		115	6.48	1426	80.38		
131	5.93	1728	78.26	11.45 - 11.55		90	5.07	1516	85.46		
114	5.16	1842	83.42	11.55 - 11.65		62	3.49	1578	88.95		
82	3.71	1924	87.14	11.65 - 11.75		56	3.16	1634	92.11		
86	3.89	2010	91.03	11.75 - 11.85		33	1.86	1667	93.97		
54	2.45	2064	93.48	11.85 - 11.95		25	1.41	1692	95.38		
34	1.54	2098	95.02	11.95 - 12.05		18	1.01	1710	96.39		
37	1.68	2135	96.69	12.05 - 12.15		17	.96	1727	97.35		
27	1.22	2162	97.92	12.15 - 12.25		15	.85	1742	98.20		
14	.63	2176	98.55	12.25 - 12.35		7	.39	1749	98.59		
12	.54	2188	99.09	12.35 - 12.45		10	.56	1759	99.15		
10	.45	2198	99.55	12.45 - 12.55		6	.34	1765	99.49		
5	.23	2203	99.77	12.55 - 12.65		3	.17	1768	99.66		
2	.09	2205	99.86	12.65 - 12.75		4	.23	1772	99.89		
0	.00	2205	99.86	12.75 - 12.85		1	.06	1773	99.94		
1	.05	2206	99.91	12.85 - 12.95		0	.00	1773	99.94		
1	.05	2207	99.95	12.95 - 13.05		0	.00	1773	99.94		
0	.00	2207	99.95	13.05 - 13.15		1	.06	1774	100.00		
0	.00	2207	99.95	13.15 - 13.25							
0	.00	2207	99.95	13.25 - 13.35							
1	.05	2208	100.00	13.35 - 13.45							

## (H26) MENTON-BACK OF HEAD

The horizontal distance between the menton landmark at the bottom of the chin and the vertical plane tangent to the back of the head is measured.



THE PERCENTILES					
FEMALES			MALES		
CM	INCHES		CM	INCHES	
15.17	5.97	1ST	15.70	6.18	
15.39	6.06	2ND	16.05	6.32	
15.54	6.12	3RD	16.26	6.40	
15.75	6.20	5TH	16.53	6.51	
16.08	6.33	10TH	16.93	6.67	
16.31	6.42	15TH	17.19	6.77	
16.50	6.50	20TH	17.39	6.84	
16.66	6.56	25TH	17.56	6.91	
16.81	6.62	30TH	17.71	6.97	
16.95	6.67	35TH	17.85	7.03	
17.08	6.72	40TH	17.98	7.08	
17.21	6.77	45TH	18.11	7.13	
17.33	6.82	50TH	18.24	7.18	
17.46	6.87	55TH	18.36	7.23	
17.58	6.92	60TH	18.49	7.28	
17.71	6.97	65TH	18.63	7.33	
17.85	7.03	70TH	18.77	7.39	
18.00	7.09	75TH	18.93	7.45	
18.16	7.15	80TH	19.11	7.52	
18.35	7.20	85TH	19.31	7.60	
18.59	7.32	90TH	19.57	7.71	
18.94	7.46	95TH	19.96	7.86	
19.17	7.55	97TH	20.22	7.96	
19.33	7.61	98TH	20.40	8.03	
19.58	7.71	99TH	20.68	8.14	

# MENTON-BACK OF HEAD

## FEMALES

<u>CM</u>		<u>INCHES</u>
17.33	MEAN VALUE	6.82
.02	SE (MEAN)	.00
.98	STD DEVIATION	.38
.00	SE (STD DEV)	.00
14.08	MINIMUM	5.54
21.00	MAXIMUM	8.27

SYMMETRY---VETA I = .05  
 KURTOSIS---VETA II = 2.95  
 COEF. OF VARIATION = 5.6%  
 NUMBER OF SUBJECTS = 2208

## MALES

<u>CM</u>		<u>INCHES</u>
18.24	MEAN VALUE	7.18
.02	SE (MEAN)	.00
1.05	STD DEVIATION	.41
.02	SE (STD DEV)	.00
14.29	MINIMUM	5.63
21.30	MAXIMUM	8.39

SYMMETRY---VETA I = -.09  
 KURTOSIS---VETA II = 3.17  
 COEF. OF VARIATION = 5.7%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
1	.05	1	.05
1	.05	2	.09
3	.14	5	.23
8	.36	13	.59
4	.18	17	.77
12	.54	29	1.31
21	.95	50	2.26
34	1.54	84	3.80
59	2.67	143	6.48
74	3.35	217	9.83
87	3.94	304	13.77
100	4.53	404	18.30
124	5.62	528	23.91
161	7.29	689	31.20
163	7.38	852	38.59
185	8.38	1037	46.97
184	8.33	1221	55.30
153	6.93	1374	62.23
177	8.02	1551	70.24
140	6.34	1691	76.59
118	5.34	1809	81.93
93	4.21	1902	86.14
96	4.35	1998	90.49
74	3.35	2072	93.84
51	2.31	2123	96.15
38	1.72	2161	97.87
18	.82	2179	98.69
7	.32	2186	99.00
11	.50	2197	99.50
3	.14	2200	99.64
4	.18	2204	99.82
1	.05	2205	99.86
1	.05	2206	99.91
0	.00	2206	99.91
2	.09	2208	100.00

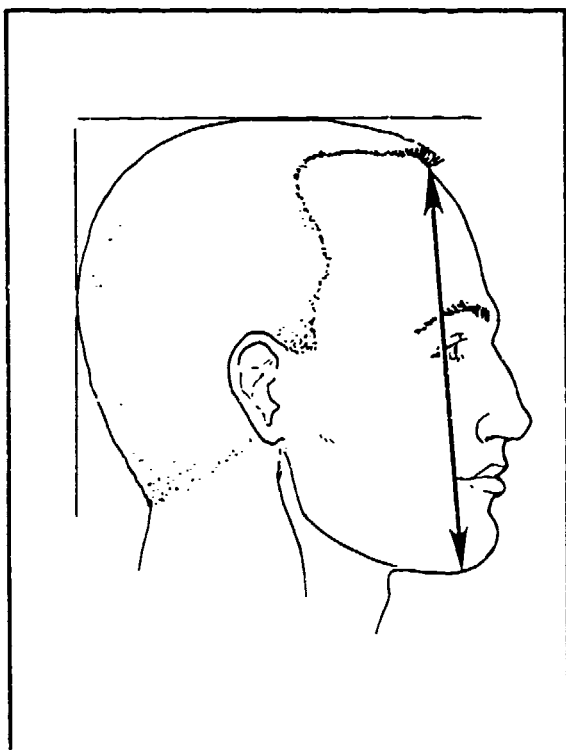
<u>CENTIMETERS</u>
14.05 - 14.25
14.25 - 14.45
14.45 - 14.65
14.65 - 14.85
14.85 - 15.05
15.05 - 15.25
15.25 - 15.45
15.45 - 15.65
15.65 - 15.85
15.85 - 16.05
16.05 - 16.25
16.25 - 16.45
16.45 - 16.65
16.65 - 16.85
16.85 - 17.05
17.05 - 17.25
17.25 - 17.45
17.45 - 17.65
17.65 - 17.85
17.85 - 18.05
18.05 - 18.25
18.25 - 18.45
18.45 - 18.65
18.65 - 18.85
18.85 - 19.05
19.05 - 19.25
19.25 - 19.45
19.45 - 19.65
19.65 - 19.85
19.85 - 20.05
20.05 - 20.25
20.25 - 20.45
20.45 - 20.65
20.65 - 20.85
20.85 - 21.05
21.05 - 21.25
21.25 - 21.45

### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
1	.06	2	.11
2	.11	4	.23
3	.17	7	.39
3	.17	10	.56
2	.11	12	.68
5	.28	17	.96
9	.51	26	1.47
4	.23	30	1.69
20	1.13	50	2.82
25	1.41	75	4.23
33	1.86	108	6.09
55	3.10	163	9.19
58	3.27	221	12.46
73	4.11	294	16.57
92	5.19	386	21.76
111	6.26	497	28.02
132	7.44	629	35.46
130	7.33	759	42.78
131	7.38	890	50.17
134	7.55	1024	57.72
141	7.95	1165	65.67
123	6.93	1288	72.60
100	5.64	1388	78.24
95	5.36	1483	83.60
71	4.00	1554	87.60
63	3.55	1617	91.15
44	2.48	1661	93.63
37	2.09	1698	95.72
28	1.58	1726	97.29
20	1.13	1746	98.42
6	.34	1752	98.76
12	.68	1764	99.44
5	.28	1769	99.72
4	.23	1773	99.94
1	.06	1774	100.00

## (H27) MENTON-CRINION LENGTH

The straight-line distance between the menton landmark at the bottom of the chin and the crinion landmark on the lowest point of the hairline on the forehead is measured.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
15.50	6.10	1ST	16.60	6.54
15.72	6.19	2ND	16.94	6.67
15.87	6.25	3RD	17.14	6.75
16.07	6.33	5TH	17.40	6.85
16.41	6.46	10TH	17.77	7.00
16.64	6.55	15TH	18.01	7.09
16.83	6.62	20TH	18.20	7.17
16.99	6.69	25TH	18.37	7.23
17.13	6.75	30TH	18.52	7.29
17.27	6.80	35TH	18.66	7.34
17.40	6.85	40TH	18.79	7.40
17.52	6.90	45TH	18.92	7.45
17.65	6.95	50TH	19.05	7.50
17.77	7.00	55TH	19.18	7.55
17.90	7.05	60TH	19.31	7.60
18.02	7.10	65TH	19.46	7.66
18.16	7.15	70TH	19.61	7.72
18.31	7.21	75TH	19.77	7.78
18.47	7.27	80TH	19.96	7.86
18.63	7.34	85TH	20.18	7.94
18.89	7.44	90TH	20.46	8.05
19.23	7.57	95TH	20.87	8.22
19.44	7.66	97TH	21.13	8.32
19.60	7.72	98TH	21.31	8.39
19.85	7.81	99TH	21.59	8.50



### MENTON-CRINION LENGTH

**MALES**

<u>CM</u>		<u>INCHES</u>
19.08	MEAN VALUE	7.51
.03	SE (MEAN)	.00
1.05	STD DEVIATION	.41
.02	SE (STD DEV)	.00
15.59	MINIMUM	6.14
22.34	MAXIMUM	8.80

SYMMETRY---VETA I	=	.06
KURTOSIS---VETA II	=	3.02
COEF. OF VARIATION	=	5.5%
NUMBER OF SUBJECTS	=	1747

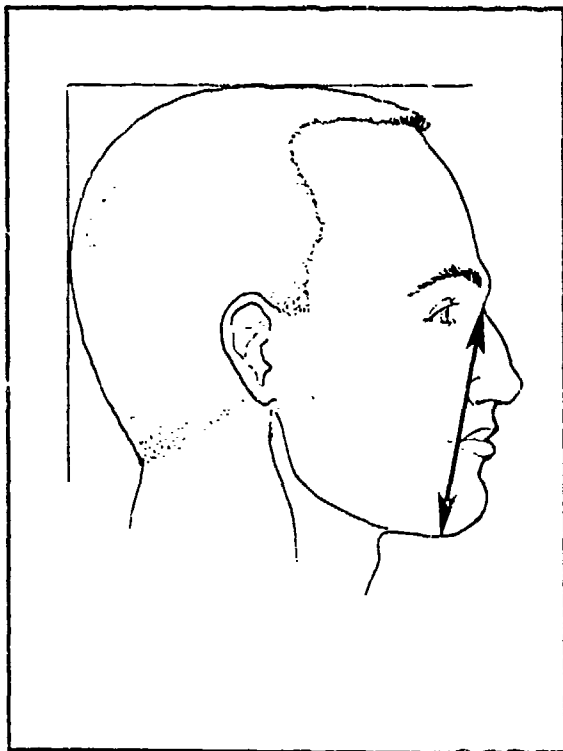
## FEMALES

**MALES**

F	FPct	CumF	CumFPct
1	.06	1	.06
2	.11	3	.17
2	.11	5	.29
5	.29	10	.57
6	.34	16	.92
8	.46	24	1.37
6	.34	30	1.72
20	1.14	50	2.86
27	1.55	77	4.41
45	2.58	122	6.98
60	3.43	182	10.42
62	3.55	244	13.97
85	4.87	329	18.83
99	5.67	428	24.50
01	5.78	529	30.28
25	7.16	654	37.44
46	8.36	800	45.79
46	8.36	946	54.15
29	7.38	1075	61.53
05	6.01	1180	67.54
16	6.64	1296	74.18
08	6.18	1404	80.37
75	4.29	1479	84.66
64	3.66	1543	88.32
55	3.15	1598	91.47
37	2.12	1635	93.59
31	1.77	1666	95.36
30	1.72	1696	97.08
17	.97	1713	98.05
15	.86	1728	98.91
5	.29	1733	99.20
9	.52	1742	99.71
2	.11	1744	99.83
3	.17	1747	100.00

## (H28) MENTON-SELLION LENGTH

The straight-line distance between the menton landmark at the bottom of the chin and the sellion landmark on the deepest point of the root of the nose is measured.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
10.06	3.96	1ST	10.75	4.23	
10.20	4.01	2ND	10.88	4.28	
10.29	4.05	3RD	10.97	4.32	
10.41	4.10	5TH	11.10	4.37	
10.61	4.18	10TH	11.31	4.45	
10.75	4.23	15TH	11.46	4.51	
10.86	4.28	20TH	11.58	4.56	
10.95	4.31	25TH	11.68	4.60	
11.04	4.35	30TH	11.77	4.63	
11.12	4.38	35TH	11.86	4.67	
11.20	4.41	40TH	11.94	4.70	
11.27	4.44	45TH	12.02	4.73	
11.35	4.47	50TH	12.10	4.76	
11.42	4.50	55TH	12.18	4.80	
11.50	4.53	60TH	12.26	4.83	
11.58	4.56	65TH	12.35	4.86	
11.66	4.59	70TH	12.43	4.90	
11.75	4.63	75TH	12.53	4.93	
11.86	4.67	80TH	12.64	4.98	
11.98	4.72	85TH	12.77	5.03	
12.14	4.78	90TH	12.93	5.09	
12.39	4.88	95TH	13.18	5.19	
12.56	4.94	97TH	13.35	5.26	
12.68	4.99	98TH	13.49	5.31	
12.89	5.08	99TH	13.70	5.40	

# MENTON-SELLION LENGTH

## FEMALES

CM		INCHES
11.37	MEAN VALUE	4.47
.00	SE(MEAN)	.00
.60	STD DEVIATION	.24
.00	SE(STD DEV)	.00
9.42	MINIMUM	3.71
13.42	MAXIMUM	5.28

SYMMETRY---VETA I = .20  
 KURTOSIS---VETA II = 3.04  
 COEF. OF VARIATION = 5.3%  
 NUMBER OF SUBJECTS = 2208

## MALES

CM		INCHES
12.11	MEAN VALUE	4.77
.02	SE(MEAN)	.00
.64	STD DEVIATION	.25
.00	SE(STD DEV)	.00
9.93	MINIMUM	3.91
14.71	MAXIMUM	5.79

SYMMETRY---VETA I = .16  
 KURTOSIS---VETA II = 3.12  
 COEF. OF VARIATION = 5.3%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
1	.05	1	.05
0	.00	1	.05
1	.05	2	.09
2	.09	4	.18
1	.05	5	.23
5	.23	10	.45
11	.50	21	.95
12	.54	33	1.49
21	.95	54	2.45
33	1.49	87	3.94
43	1.95	130	5.89
60	2.72	190	8.61
44	1.99	234	10.60
82	3.71	316	14.31
85	3.85	401	18.16
128	5.80	529	23.96
162	7.34	691	31.30
138	6.25	829	37.55
128	5.80	957	43.34
153	6.93	1110	50.27
144	6.52	1254	56.79
136	6.16	1390	62.95
137	6.20	1527	69.16
121	5.48	1648	74.64
92	4.17	1740	78.80
98	4.44	1838	83.24
81	3.67	1919	86.91
70	3.17	1989	90.08
55	2.49	2044	92.57
40	1.81	2084	94.38
34	1.54	2118	95.92
25	1.13	2143	97.06
18	.82	2161	97.87
7	.32	2168	98.19
13	.59	2181	98.78
10	.45	2191	99.23
8	.36	2199	99.59
4	.18	2203	99.77
2	.09	2205	99.86
1	.05	2206	99.91
2	.09	2208	100.00

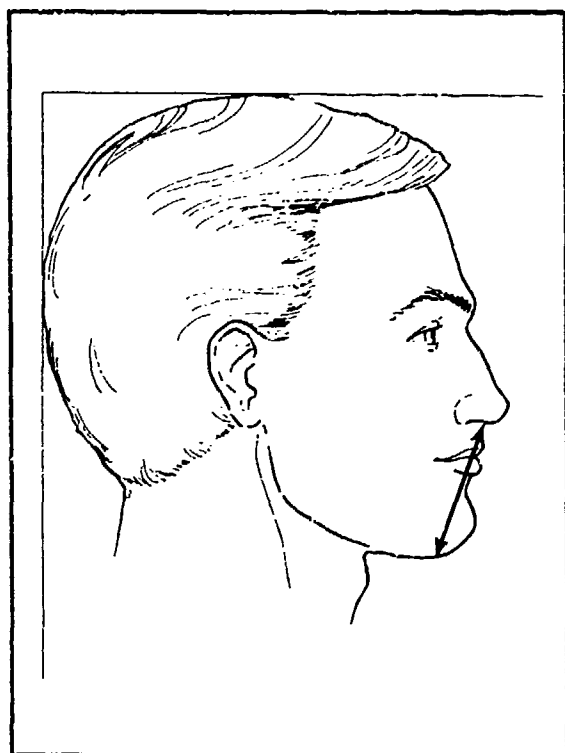
CENTIMETERS
9.35 - 9.45
9.45 - 9.55
9.55 - 9.65
9.65 - 9.75
9.75 - 9.85
9.85 - 9.95
9.95 - 10.05
10.05 - 10.15
10.15 - 10.25
10.25 - 10.35
10.35 - 10.45
10.45 - 10.55
10.55 - 10.65
10.65 - 10.75
10.75 - 10.85
10.85 - 10.95
10.95 - 11.05
11.05 - 11.15
11.15 - 11.25
11.25 - 11.35
11.35 - 11.45
11.45 - 11.55
11.55 - 11.65
11.65 - 11.75
11.75 - 11.85
11.85 - 11.95
11.95 - 12.05
12.05 - 12.15
12.15 - 12.25
12.25 - 12.35
12.35 - 12.45
12.45 - 12.55
12.55 - 12.65
12.65 - 12.75
12.75 - 12.85
12.85 - 12.95
12.95 - 13.05
13.05 - 13.15
13.15 - 13.25
13.25 - 13.35
13.35 - 13.45
13.45 - 13.55
13.55 - 13.65
13.65 - 13.75
13.75 - 13.85
13.85 - 13.95
13.95 - 14.05
14.05 - 14.15
14.15 - 14.25
14.25 - 14.35
14.35 - 14.45
14.45 - 14.55
14.55 - 14.65
14.65 - 14.75

### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
0	.00	1	.06
0	.00	1	.06
2	.11	3	.17
2	.11	5	.28
3	.17	8	.45
2	.11	10	.56
3	.17	13	.73
5	.28	18	1.01
7	.39	25	1.41
24	1.35	49	2.76
21	1.18	70	3.95
38	2.14	108	6.09
47	2.65	155	8.74
37	2.09	192	10.82
73	4.11	265	14.94
70	3.95	335	18.88
87	4.90	422	23.79
83	4.68	505	28.47
109	6.14	614	34.61
99	5.58	713	40.19
102	5.75	815	45.94
125	7.05	940	52.99
116	6.54	1056	59.53
104	5.86	1160	65.39
81	4.57	1241	69.95
92	5.19	1333	75.14
88	4.96	1421	80.10
72	4.06	1493	84.16
61	3.44	1554	87.60
57	3.21	1611	90.81
38	2.14	1649	92.95
24	1.35	1673	94.31
25	1.41	1698	95.72
22	1.24	1720	96.96
15	.85	1735	97.80
7	.39	1742	98.20
8	.45	1750	98.65
9	.51	1759	99.15
6	.34	1765	99.49
3	.17	1768	99.66
2	.11	1770	99.77
1	.06	1771	99.83
1	.06	1772	99.89
1	.06	1773	99.94
0	.00	1773	99.94
0	.00	1773	99.94
1	.06	1774	100.00

## (H29) MENTON-SUBNASALE LENGTH

The straight-line distance between the menton landmark at the bottom of the chin and the subnasale landmark under the nose is measured.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
5.69	2.24	1ST	6.13	2.41	
5.82	2.29	2ND	6.27	2.47	
5.91	2.33	3RD	6.35	2.50	
6.03	2.37	5TH	6.47	2.55	
6.22	2.45	10TH	6.65	2.62	
6.34	2.50	15TH	6.77	2.67	
6.44	2.54	20TH	6.88	2.71	
6.53	2.57	25TH	6.96	2.74	
6.60	2.60	30TH	7.04	2.77	
6.67	2.63	35TH	7.12	2.80	
6.74	2.65	40TH	7.19	2.83	
6.80	2.68	45TH	7.26	2.86	
6.87	2.70	50TH	7.33	2.89	
6.93	2.73	55TH	7.41	2.92	
7.00	2.76	60TH	7.48	2.94	
7.07	2.78	65TH	7.56	2.97	
7.14	2.81	70TH	7.64	3.01	
7.22	2.84	75TH	7.73	3.04	
7.31	2.88	80TH	7.83	3.06	
7.42	2.92	85TH	7.94	3.13	
7.56	2.98	90TH	8.09	3.18	
7.79	3.07	95TH	8.31	3.27	
7.94	3.13	97TH	8.44	3.32	
8.07	3.18	98TH	8.55	3.36	
8.27	3.26	99TH	8.70	3.43	

# MENTON-SUBNASALE LENGTH

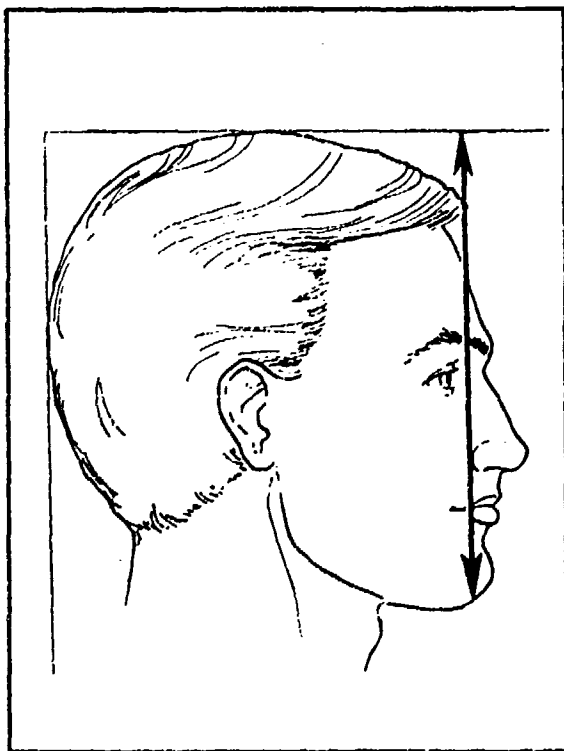
FEMALES		
CM		INCHES
6.88	MEAN VALUE	2.71
.00	SE (MEAN)	.00
.54	STD DEVIATION	.21
.00	SE (STD DEV)	.00
4.80	MINIMUM	1.89
8.77	MAXIMUM	3.45
SYMMETRY---VETA I = .20		
KURTOSIS---VETA II = 3.31		
COEF. OF VARIATION = 7.8%		
NUMBER OF SUBJECTS = 2208		

MALES		
CM		INCHES
7.35	MEAN VALUE	2.89
.00	SE (MEAN)	.00
.56	STD DEVIATION	.22
.00	SE (STD DEV)	.00
5.65	MINIMUM	2.22
9.69	MAXIMUM	3.82
SYMMETRY---VETA I = .20		
KURTOSIS---VETA II = 3.08		
COEF. OF VARIATION = 7.6%		
NUMBER OF SUBJECTS = 1774		

FREQUENCY TABLE									
FEMALES					MALES				
F	FPct	CumF	CumFPct	CENTIMETERS	F	FPct	CumF	CumFPct	
1	.05	1	.05	4.75 - 4.85					
0	.00	1	.05	4.85 - 4.95					
0	.00	1	.05	4.95 - 5.05					
0	.00	1	.05	5.05 - 5.15					
1	.05	2	.09	5.15 - 5.25					
2	.09	4	.18	5.25 - 5.35					
3	.14	7	.32	5.35 - 5.45					
4	.18	11	.50	5.45 - 5.55					
8	.36	19	.86	5.55 - 5.65					
14	.63	33	1.49	5.65 - 5.75	2	.11	2	.11	
17	.77	50	2.26	5.75 - 5.85	0	.00	2	.11	
29	1.31	79	3.58	5.85 - 5.95	0	.00	2	.11	
36	1.63	115	5.21	5.95 - 6.05	7	.39	9	.51	
58	2.63	173	7.84	6.05 - 6.15	11	.62	20	1.13	
54	2.45	227	10.28	6.15 - 6.25	12	.68	32	1.80	
97	4.39	324	14.67	6.25 - 6.35	21	1.18	53	2.99	
131	5.93	455	20.61	6.35 - 6.45	23	1.30	76	4.28	
120	5.43	575	26.04	6.45 - 6.55	58	3.27	134	7.55	
170	7.70	745	33.74	6.55 - 6.65	46	2.59	180	10.15	
168	7.61	913	41.35	6.65 - 6.75	66	3.72	246	13.87	
153	6.93	1066	48.28	6.75 - 6.85	71	4.00	317	17.87	
164	7.43	1230	55.71	6.85 - 6.95	107	6.03	424	23.90	
179	8.11	1409	63.81	6.95 - 7.05	111	6.26	535	30.16	
149	6.75	1558	70.56	7.05 - 7.15	109	6.14	644	36.30	
111	5.03	1669	75.59	7.15 - 7.25	122	6.88	766	43.18	
127	5.75	1796	81.34	7.25 - 7.35	144	8.12	910	51.30	
97	4.39	1893	85.73	7.35 - 7.45	121	6.82	1031	58.12	
71	3.22	1964	88.95	7.45 - 7.55	122	6.88	1153	64.99	
59	2.67	2023	91.62	7.55 - 7.65	107	6.03	1260	71.03	
69	3.13	2092	94.75	7.65 - 7.75	90	5.07	1350	76.10	
31	1.40	2123	96.15	7.75 - 7.85	80	4.51	1430	80.61	
17	.77	2140	96.92	7.85 - 7.95	76	4.28	1506	84.89	
23	1.04	2163	97.96	7.95 - 8.05	84	4.74	1590	89.63	
14	.63	2177	98.60	8.05 - 8.15	46	2.59	1636	92.22	
8	.36	2185	98.96	8.15 - 8.25	34	1.92	1670	94.14	
6	.27	2191	99.23	8.25 - 8.35	22	1.24	1692	95.38	
4	.18	2195	99.41	8.35 - 8.45	23	1.30	1715	96.67	
6	.27	2201	99.68	8.45 - 8.55	24	1.35	1739	98.03	
2	.09	2203	99.77	8.55 - 8.65	14	.79	1753	98.82	
4	.18	2207	99.95	8.65 - 8.75	6	.34	1759	99.15	
1	.05	2208	100.00	8.75 - 8.85	6	.34	1765	99.49	
				8.85 - 8.95	4	.23	1769	99.72	
				8.95 - 9.05	0	.00	1769	99.72	
				9.05 - 9.15	2	.11	1771	99.83	
				9.15 - 9.25	1	.06	1772	99.89	
				9.25 - 9.35	0	.00	1772	99.89	
				9.35 - 9.45	0	.00	1772	99.89	
				9.45 - 9.55	1	.06	1773	99.94	
				9.55 - 9.65	0	.00	1773	99.94	
				9.65 - 9.75	1	.06	1774	100.00	

### (H30) MENTON-TOP OF HEAD

The vertical distance between the menton landmark at the bottom of the chin and the horizontal plane tangent to the top of the head is measured.



#### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
19.78	7.79	1ST	21.18	8.34	
20.01	7.88	2ND	21.41	8.43	
20.16	7.94	3RD	21.56	8.49	
20.36	8.02	5TH	21.76	8.57	
20.67	8.14	10TH	22.08	8.69	
20.88	8.22	15TH	22.29	8.78	
21.05	8.29	20TH	22.46	8.84	
21.19	8.34	25TH	22.60	8.90	
21.32	8.39	30TH	22.73	8.95	
21.43	8.44	35TH	22.85	9.00	
21.54	8.48	40TH	22.96	9.04	
21.65	8.52	45TH	23.07	9.08	
21.76	8.57	50TH	23.18	9.13	
21.86	8.61	55TH	23.29	9.17	
21.97	8.65	60TH	23.40	9.21	
22.08	8.69	65TH	23.51	9.26	
22.19	8.74	70TH	23.63	9.30	
22.32	8.79	75TH	23.77	9.36	
22.46	8.84	80TH	23.92	9.42	
22.62	8.91	85TH	24.10	9.49	
22.83	8.99	90TH	24.33	9.58	
23.15	9.12	95TH	24.69	9.72	
23.37	9.20	97TH	24.94	9.82	
23.53	9.27	98TH	25.13	9.90	
23.80	9.37	99TH	25.46	10.07	

# MENTON-TOP OF HEAD

## FEMALES

CM		INCHES
21.76	MEAN VALUE	8.57
.02	SE(MEAN)	.00
.85	STD DEVIATION	.33
.00	SE(STD DEV)	.00
18.68	MINIMUM	7.35
24.49	MAXIMUM	9.64

SYMMETRY---VETA I = .03  
 KURTOSIS---VETA II = 3.03  
 COEF. OF VARIATION = 3.9%  
 NUMBER OF SUBJECTS = 2208

## MALES

CM		INCHES
23.20	MEAN VALUE	9.13
.02	SE(MEAN)	.00
.88	STD DEVIATION	.35
.00	SE(STD DEV)	.00
20.58	MINIMUM	8.10
26.57	MAXIMUM	10.46

SYMMETRY---VETA I = .16  
 KURTOSIS---VETA II = 3.11  
 COEF. OF VARIATION = 3.8%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
1	.05	1	.05
1	.05	2	.09
0	.00	2	.09
3	.14	5	.23
.11	.50	16	.72
11	.50	27	1.22
21	.95	48	2.17
36	1.63	84	3.80
47	2.13	131	5.93
71	3.22	202	9.15
100	4.53	302	13.68
138	6.25	440	19.93
155	7.02	595	26.95
192	8.70	787	35.64
207	9.38	994	45.02
197	8.92	1191	53.94
202	9.15	1393	63.09
207	9.38	1600	72.46
149	6.75	1749	79.21
126	5.71	1875	84.92
107	4.85	1982	89.76
79	3.58	2061	93.34
70	3.17	2131	96.51
23	1.04	2154	97.55
23	1.04	2177	98.60
9	.41	2186	99.00
13	.59	2199	99.59
2	.09	2201	99.68
6	.27	2207	99.95
1	.05	2208	100.00

### CENTIMETERS

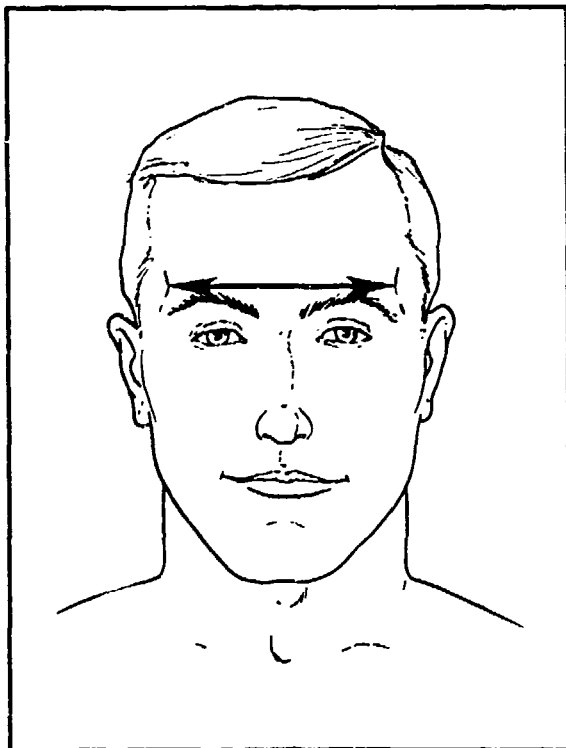
18.65 - 18.85
18.85 - 19.05
19.05 - 19.25
19.25 - 19.45
19.45 - 19.65
19.65 - 19.85
19.85 - 20.05
20.05 - 20.25
20.25 - 20.45
20.45 - 20.65
20.65 - 20.85
20.85 - 21.05
21.05 - 21.25
21.25 - 21.45
21.45 - 21.65
21.65 - 21.85
21.85 - 22.05
22.05 - 22.25
22.25 - 22.45
22.45 - 22.65
22.65 - 22.85
22.85 - 23.05
23.05 - 23.25
23.25 - 23.45
23.45 - 23.65
23.65 - 23.85
23.85 - 24.05
24.05 - 24.25
24.25 - 24.45
24.45 - 24.65
24.65 - 24.85
24.85 - 25.05
25.05 - 25.25
25.25 - 25.45
25.45 - 25.65
25.65 - 25.85
25.85 - 26.05
26.05 - 26.25
26.25 - 26.45
26.45 - 26.65

### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
2	.11	3	.17
9	.51	12	.68
9	.51	21	1.18
17	.96	38	2.14
20	1.13	58	3.27
36	2.03	94	5.30
69	3.89	163	9.19
93	5.24	256	14.43
103	5.81	359	20.24
124	6.99	483	27.23
144	8.12	627	35.34
148	8.34	775	43.69
163	9.19	938	52.87
158	8.91	1096	61.78
144	8.12	1240	69.90
139	7.84	1379	77.73
93	5.24	1472	82.98
101	5.69	1573	88.67
59	3.33	1632	92.00
47	2.65	1679	94.64
39	2.20	1718	96.84
10	.56	1728	97.41
17	.96	1745	98.37
11	.62	1756	98.99
9	.51	1765	99.49
5	.28	1770	99.77
1	.06	1771	99.83
2	.11	1773	99.94
0	.00	1773	99.94
1	.06	1774	100.00

## (H31) MINIMUM FRONTAL BREADTH

The straight-line distance between the right and left frontotemporale landmarks on the temporal crests on each side of the forehead is measured.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
9.17	3.61	1ST	9.38	3.69	
9.32	3.67	2ND	9.50	3.74	
9.42	3.71	3RD	9.58	3.77	
9.54	3.76	5TH	9.69	3.81	
9.72	3.83	10TH	9.86	3.88	
9.84	3.87	15TH	9.98	3.93	
9.93	3.91	20TH	10.07	3.97	
10.01	3.94	25TH	10.16	4.00	
10.08	3.97	30TH	10.23	4.03	
10.14	3.99	35TH	10.30	4.05	
10.21	4.02	40TH	10.36	4.08	
10.27	4.04	45TH	10.43	4.11	
10.32	4.06	50TH	10.49	4.13	
10.38	4.09	55TH	10.55	4.15	
10.44	4.11	60TH	10.62	4.18	
10.51	4.14	65TH	10.69	4.21	
10.57	4.16	70TH	10.76	4.24	
10.65	4.19	75TH	10.84	4.27	
10.73	4.22	80TH	10.92	4.30	
10.82	4.26	85TH	11.03	4.34	
10.94	4.31	90TH	11.17	4.40	
11.12	4.38	95TH	11.38	4.48	
11.24	4.42	97TH	11.53	4.54	
11.32	4.46	98TH	11.65	4.59	
11.45	4.51	99TH	11.84	4.66	



# MINIMUM FRONTAL BREADTH

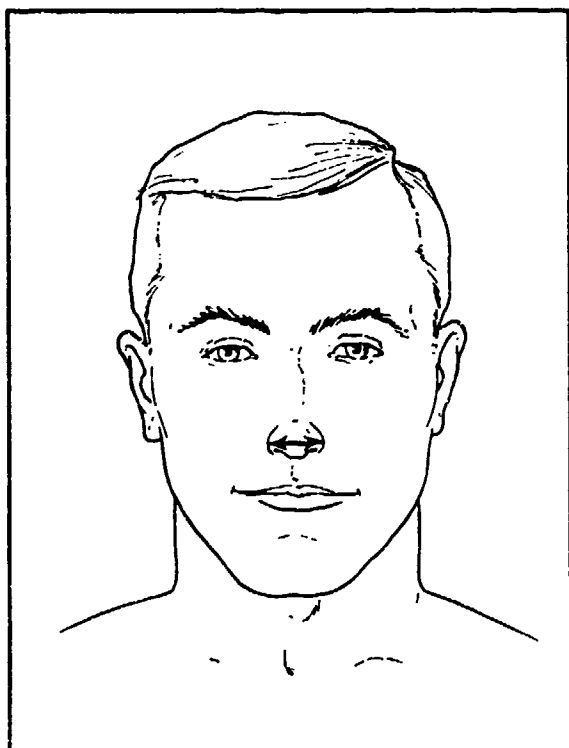
FEMALES		
CM		INCHES
10.33	MEAN VALUE	4.07
.00	SE(MEAN)	.00
.48	STD DEVIATION	.19
.00	SE(STD DEV)	.00
8.59	MINIMUM	3.38
12.10	MAXIMUM	4.76
SYMMETRY---VETA I = .00		
KURTOSIS---VETA II = 3.14		
COEF. OF VARIATION = 4.6%		
NUMBER OF SUBJECTS = 2208		

MALES		
CM		INCHES
10.51	MEAN VALUE	4.14
.00	SE(MEAN)	.00
.52	STD DEVIATION	.20
.00	SE(STD DEV)	.00
8.16	MINIMUM	3.21
12.74	MAXIMUM	5.02
SYMMETRY---VETA I = .20		
KURTOSIS---VETA II = 3.44		
COEF. OF VARIATION = 4.9%		
NUMBER OF SUBJECTS = 1774		

FREQUENCY TABLE									
FEMALES									
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct
				8.15 -	8.25	1	.06	1	.06
				8.25 -	8.35	0	.00	1	.06
				8.35 -	8.45	0	.00	1	.06
				8.45 -	8.55	0	.00	1	.06
				8.55 -	8.65	0	.00	1	.06
				8.65 -	8.75	0	.00	1	.06
				8.75 -	8.85	1	.06	2	.11
				8.85 -	8.95	0	.00	2	.11
				8.95 -	9.05	0	.00	2	.11
				9.05 -	9.15	1	.06	3	.17
				9.15 -	9.25	4	.23	7	.39
				9.25 -	9.35	6	.34	13	.73
				9.35 -	9.45	13	.73	26	1.47
				9.45 -	9.55	21	1.18	47	2.65
				9.55 -	9.65	27	1.52	74	4.17
				9.65 -	9.75	30	1.69	104	5.86
				9.75 -	9.85	61	3.44	165	9.30
				9.85 -	9.95	63	3.55	228	12.85
				9.95 -	10.05	96	5.41	324	18.26
				10.05 -	10.15	119	6.71	443	24.97
				10.15 -	10.25	120	6.76	563	31.74
				10.25 -	10.35	123	6.93	686	38.67
				10.35 -	10.45	124	6.99	810	45.66
				10.45 -	10.55	156	8.79	966	54.45
				10.55 -	10.65	135	7.61	1101	62.06
				10.65 -	10.75	124	6.99	1225	69.05
				10.75 -	10.85	111	6.26	1336	75.31
				10.85 -	10.95	104	5.86	1440	81.17
				10.95 -	11.05	86	4.85	1526	86.02
				11.05 -	11.15	60	3.38	1586	89.40
				11.15 -	11.25	47	2.65	1633	92.05
				11.25 -	11.35	43	2.42	1676	94.48
				11.35 -	11.45	30	1.69	1706	96.17
				11.45 -	11.55	18	1.01	1724	97.18
				11.55 -	11.65	15	.85	1739	98.03
				11.65 -	11.75	9	.51	1748	98.53
				11.75 -	11.85	8	.45	1756	98.99
				11.85 -	11.95	9	.51	1765	99.49
				11.95 -	12.05	3	.17	1768	99.66
				12.05 -	12.15	1	.06	1769	99.72
				12.15 -	12.25	3	.17	1772	99.89
				12.25 -	12.35	1	.06	1773	99.94
				12.35 -	12.45	0	.00	1773	99.94
				12.45 -	12.55	0	.00	1773	99.94
				12.55 -	12.65	0	.00	1773	99.94
				12.65 -	12.75	1	.06	1774	100.00

## (H32) NOSE BREADTH

The straight-line distance between the right and left alare landmarks on the sides of the nostrils is measured.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
2.59	1.02	1ST	2.85	1.12	
2.67	1.05	2ND	2.94	1.16	
2.70	1.06	3RD	2.99	1.18	
2.77	1.09	5TH	3.05	1.20	
2.87	1.13	10TH	3.13	1.23	
2.94	1.16	15TH	3.19	1.26	
3.01	1.18	20TH	3.25	1.28	
3.07	1.21	25TH	3.30	1.30	
3.13	1.23	30TH	3.35	1.32	
3.19	1.25	35TH	3.40	1.34	
3.24	1.28	40TH	3.46	1.36	
3.31	1.30	45TH	3.51	1.38	
3.39	1.33	50TH	3.57	1.41	
3.47	1.37	55TH	3.63	1.43	
3.56	1.40	60TH	3.70	1.46	
3.64	1.43	65TH	3.77	1.48	
3.73	1.47	70TH	3.85	1.52	
3.81	1.50	75TH	3.94	1.55	
3.90	1.53	80TH	4.04	1.59	
4.00	1.58	85TH	4.16	1.64	
4.12	1.62	90TH	4.32	1.70	
4.28	1.68	95TH	4.54	1.79	
4.36	1.72	97TH	4.67	1.84	
4.42	1.74	98TH	4.75	1.87	
4.51	1.78	99TH	4.86	1.91	

# NOSE BREADTH

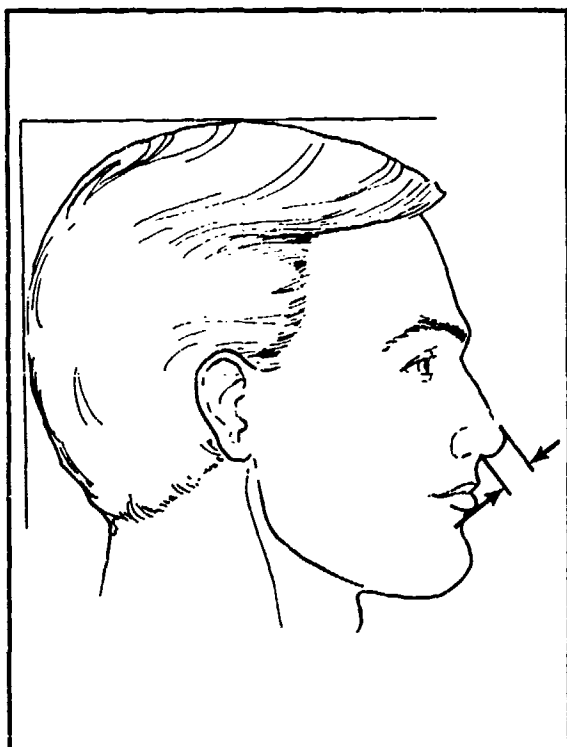
FEMALES		
CM		INCHES
3.45	MEAN VALUE	1.36
.00	SE(MEAN)	.00
.47	STD DEVIATION	.19
.00	SE(STD DEV)	.00
2.33	MINIMUM	.92
5.00	MAXIMUM	1.97
SYMMETRY---VETA I = .32		
KURTOSIS---VETA II = 2.32		
COEF. OF VARIATION = 13.7%		
NUMBER OF SUBJECTS = 2208		

MALES		
CM		INCHES
3.65	MEAN VALUE	1.44
.00	SE(MEAN)	.00
.46	STD DEVIATION	.18
.00	SE(STD DEV)	.00
2.61	MINIMUM	1.03
5.25	MAXIMUM	2.07
SYMMETRY---VETA I = .69		
KURTOSIS---VETA II = 2.99		
COEF. OF VARIATION = 12.6%		
NUMBER OF SUBJECTS = 1774		

FREQUENCY TABLE									
FEMALES					MALES				
F	FPct	CumF	CumFPct	CENTIMETERS	F	FPct	CumF	CumFPct	
2	.09	2	.09	2.25 - 2.35	1	.06	1	.06	
4	.18	6	.27	2.35 - 2.45	2	.11	3	.17	
7	.32	13	.59	2.45 - 2.55	9	.51	12	.68	
24	1.09	37	1.68	2.55 - 2.65	31	1.75	43	2.42	
55	2.49	92	4.17	2.65 - 2.75	60	3.38	103	5.81	
92	4.17	184	8.33	2.75 - 2.85	91	5.13	194	10.94	
145	6.57	329	14.90	2.85 - 2.95	122	6.88	316	17.81	
176	7.97	505	22.87	2.95 - 3.05	175	9.86	491	27.68	
189	8.56	694	31.43	3.05 - 3.15	196	11.05	687	38.73	
179	8.11	873	39.54	3.15 - 3.25	179	10.09	866	48.82	
175	7.93	1048	47.46	3.25 - 3.35	158	8.91	1024	57.72	
121	5.48	1169	52.94	3.35 - 3.45	139	7.84	1163	65.56	
142	6.43	1311	59.38	3.45 - 3.55	89	5.02	1252	70.57	
127	5.75	1438	65.13	3.55 - 3.65	89	5.02	1341	75.59	
129	5.84	1567	70.97	3.65 - 3.75	73	4.11	1414	79.71	
138	6.25	1705	77.22	3.75 - 3.85	57	3.21	1471	82.92	
112	5.07	1817	82.29	3.85 - 3.95	72	4.06	1543	86.98	
101	4.57	1918	86.87	3.95 - 4.05	55	3.10	1598	90.08	
95	4.30	2013	91.17	4.05 - 4.15	57	3.21	1655	93.29	
69	3.13	2082	94.29	4.15 - 4.25	37	2.09	1692	95.38	
55	2.49	2137	96.78	4.25 - 4.35	23	1.30	1715	96.67	
34	1.54	2171	98.32	4.35 - 4.45	25	1.41	1740	98.08	
23	1.04	2194	99.37	4.45 - 4.55	16	.90	1756	98.99	
5	.23	2199	99.59	4.55 - 4.65	9	.51	1765	99.49	
3	.14	2202	99.73	4.65 - 4.75	3	.17	1768	99.66	
5	.23	2207	99.95	4.75 - 4.85	4	.23	1772	99.89	
0	.00	2207	99.95	4.85 - 4.95	1	.06	1773	99.94	
1	.05	2208	100.00	4.95 - 5.05	1	.06	1774	100.00	
				5.05 - 5.15					
				5.15 - 5.25					
				5.25 - 5.35					

### (H33) NOSE PROTRUSION

The straight-line distance between the pronasale landmark at the tip of the nose and the subnasale landmark under the nose is measured.



#### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
1.33	.52	1ST	1.34	.53	
1.37	.54	2ND	1.38	.54	
1.41	.55	3RD	1.42	.56	
1.45	.57	5TH	1.47	.58	
1.53	.60	10TH	1.55	.61	
1.58	.62	15TH	1.62	.64	
1.62	.64	20TH	1.67	.66	
1.66	.65	25TH	1.71	.67	
1.69	.67	30TH	1.75	.69	
1.73	.68	35TH	1.78	.70	
1.76	.69	40TH	1.82	.72	
1.79	.70	45TH	1.85	.73	
1.82	.71	50TH	1.88	.74	
1.84	.73	55TH	1.91	.75	
1.87	.74	60TH	1.95	.77	
1.91	.75	65TH	1.98	.78	
1.94	.76	70TH	2.01	.79	
1.97	.78	75TH	2.05	.81	
2.01	.79	80TH	2.09	.82	
2.06	.81	85TH	2.13	.84	
2.12	.83	90TH	2.19	.86	
2.20	.87	95TH	2.27	.90	
2.26	.89	97TH	2.33	.92	
2.30	.90	98TH	2.37	.93	
2.36	.93	99TH	2.44	.96	

# NOSE PROTRUSION

## FEMALES

<u>CM</u>		<u>INCHES</u>
1.82	MEAN VALUE	.72
.00	SE(MEAN)	.00
.23	STD DEVIATION	.09
.00	SE(STD DEV)	.00
1.08	MINIMUM	.43
2.49	MAXIMUM	.98

SYMMETRY---VETA I = .08  
 KURTOSIS---VETA II = 2.76  
 COEF. OF VARIATION = 12.5%  
 NUMBER OF SUBJECTS = 2208

## MALES

<u>CM</u>		<u>INCHES</u>
1.88	MEAN VALUE	.74
.00	SE(MEAN)	.00
.25	STD DEVIATION	.10
.00	SE(STD DEV)	.00
1.12	MINIMUM	.44
2.89	MAXIMUM	1.14

SYMMETRY---VETA I = .02  
 KURTOSIS---VETA II = 2.89  
 COEF. OF VARIATION = 13.1%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
2	.09	2	.09
5	.23	7	.32
25	1.13	32	1.45
71	3.22	103	4.66
160	7.25	263	11.91
252	11.41	515	23.32
318	14.40	833	37.73
377	17.07	1210	54.80
347	15.72	1557	70.52
298	13.50	1855	84.01
178	8.06	2033	92.07
98	4.44	2131	96.51
50	2.26	2181	98.78
24	1.09	2205	99.86
3	.14	2208	100.00

### CENTIMETERS

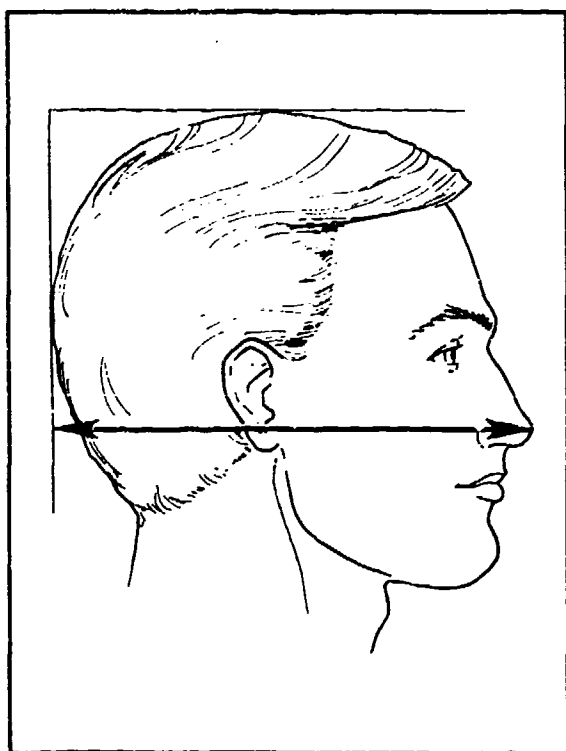
1.05 - 1.15
1.15 - 1.25
1.25 - 1.35
1.35 - 1.45
1.45 - 1.55
1.55 - 1.65
1.65 - 1.75
1.75 - 1.85
1.85 - 1.95
1.95 - 2.05
2.05 - 2.15
2.15 - 2.25
2.25 - 2.35
2.35 - 2.45
2.45 - 2.55
2.55 - 2.65
2.65 - 2.75
2.75 - 2.85
2.85 - 2.95

### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
5	.28	6	.34
15	.85	21	1.18
44	2.48	65	3.66
99	5.58	164	9.24
167	9.41	331	18.66
193	10.88	524	29.54
238	13.42	762	42.95
292	16.46	1054	59.41
272	15.33	1326	74.75
197	11.10	1523	85.85
136	7.67	1659	93.52
70	3.95	1729	97.46
31	1.75	1760	99.21
7	.39	1767	99.61
4	.23	1771	99.83
2	.11	1773	99.94
0	.00	1773	99.94
1	.06	1774	100.00

### (H34) PRONASALE-BACK OF HEAD

The horizontal distance between the pronasale landmark on the tip of the nose and the vertical plane tangent to the back of the head is measured.



THE PERCENTILES					
FEMALES			MALES		
CM	INCHES		CM	INCHES	
19.17	7.55	1ST	19.97	7.86	
19.41	7.64	2ND	20.19	7.95	
19.55	7.70	3RD	20.33	8.01	
19.74	7.77	5TH	20.54	8.09	
20.03	7.88	10TH	20.87	8.22	
20.21	7.96	15TH	21.10	8.31	
20.36	8.02	20TH	21.27	8.37	
20.49	8.07	25TH	21.42	8.43	
20.60	8.11	30TH	21.54	8.48	
20.70	8.15	35TH	21.66	8.53	
20.80	8.19	40TH	21.76	8.57	
20.89	8.22	45TH	21.86	8.61	
20.98	8.26	50TH	21.96	8.65	
21.07	8.30	55TH	22.05	8.68	
21.16	8.33	60TH	22.15	8.72	
21.26	8.37	65TH	22.24	8.76	
21.36	8.41	70TH	22.34	8.80	
21.47	8.45	75TH	22.45	8.84	
21.60	8.50	80TH	22.56	8.88	
21.74	8.56	85TH	22.70	8.94	
21.93	8.63	90TH	22.89	9.01	
22.20	8.74	95TH	23.19	9.13	
22.39	8.81	97TH	23.41	9.22	
22.53	8.87	98TH	23.60	9.29	
22.75	8.96	99TH	23.93	9.42	

# PRONASALE-BACK OF HEAD

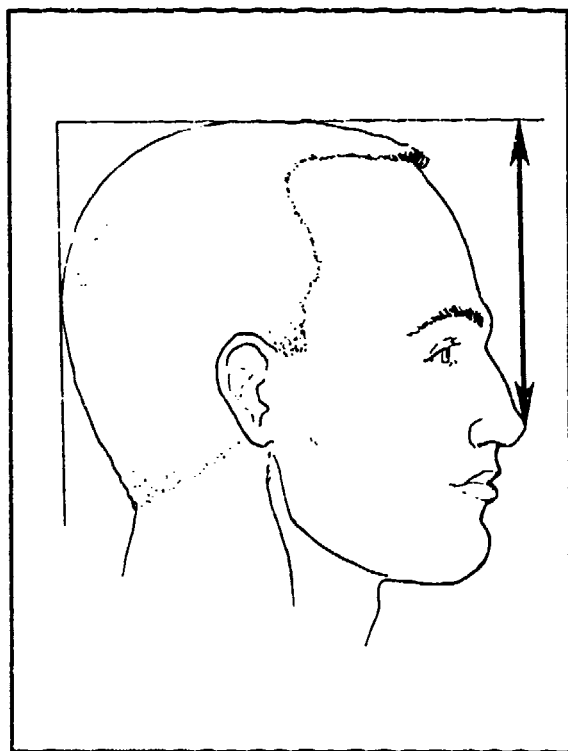
FEMALES			
CM		INCHES	
20.97	MEAN VALUE	8.26	
.02	SE(MEAN)	.00	
.75	STD DEVIATION	.29	
.00	SE(STD DEV)	.00	
17.78	MINIMUM	7.00	
23.51	MAXIMUM	9.26	
SYMMETRY---VETA I = -.09			
KURTOSIS---VETA II = 3.32			
COEF. OF VARIATION = 3.6%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
21.92	MEAN VALUE	8.63	
.02	SE(MEAN)	.00	
.80	STD DEVIATION	.32	
.00	SE(STD DEV)	.00	
18.84	MINIMUM	7.42	
24.66	MAXIMUM	9.71	
SYMMETRY---VETA I = -.08			
KURTOSIS---VETA II = 3.39			
COEF. OF VARIATION = 3.7%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
2	.09	2	.09	17.75 -	17.95						
0	.00	2	.09	17.95 -	18.15						
1	.05	3	.14	18.15 -	18.35						
3	.14	6	.27	18.35 -	18.55						
0	.00	6	.27	18.55 -	18.75						
5	.23	11	.50	18.75 -	18.95	1	.06	1	.06		
7	.32	18	.82	18.95 -	19.15	1	.06	2	.11		
19	.86	37	1.68	19.15 -	19.35	0	.00	2	.11		
34	1.54	71	3.22	19.35 -	19.55	3	.17	5	.28		
39	1.77	110	4.98	19.55 -	19.75	2	.11	7	.39		
71	3.22	181	8.20	19.75 -	19.95	11	.62	18	1.01		
105	4.76	286	12.95	19.95 -	20.15	15	.85	33	1.86		
139	6.30	425	19.25	20.15 -	20.35	17	.96	50	2.82		
184	8.33	609	27.58	20.35 -	20.55	34	1.92	84	4.74		
215	9.74	824	37.32	20.55 -	20.75	52	2.93	136	7.67		
228	10.33	1052	47.64	20.75 -	20.95	67	3.78	203	11.44		
250	11.32	1302	58.97	20.95 -	21.15	90	5.07	293	16.52		
233	10.55	1535	69.52	21.15 -	21.35	101	5.69	394	22.21		
194	8.79	1729	78.31	21.35 -	21.55	141	7.95	535	30.16		
156	7.07	1885	85.37	21.55 -	21.75	159	8.96	694	39.12		
117	5.30	2002	90.67	21.75 -	21.95	184	10.37	878	49.49		
81	3.67	2083	94.34	21.95 -	22.15	175	9.86	1053	59.36		
50	2.26	2133	96.60	22.15 -	22.35	191	10.77	1244	70.12		
32	1.45	2165	98.05	22.35 -	22.55	169	9.53	1413	79.65		
23	1.04	2188	99.09	22.55 -	22.75	122	6.88	1535	86.53		
14	.63	2202	99.73	22.75 -	22.95	84	4.74	1619	91.26		
3	.14	2205	99.86	22.95 -	23.15	60	3.38	1679	94.64		
2	.09	2207	99.95	23.15 -	23.35	29	1.63	1708	96.28		
1	.05	2208	100.00	23.35 -	23.55	28	1.58	1736	97.86		
				23.55 -	23.75	11	.62	1747	98.48		
				23.75 -	23.95	11	.62	1758	99.10		
				23.95 -	24.15	3	.17	1761	99.27		
				24.15 -	24.35	8	.45	1769	99.72		
				24.35 -	24.55	3	.17	1772	99.89		
				24.55 -	24.75	2	.11	1774	100.00		

### (H35) PRONASALE-TOP OF HEAD

The vertical distance between the pronasale landmark on the tip of the nose and the horizontal plane tangent to the top of the head is measured.



#### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
12.30	4.84	1ST	13.33	5.25
12.51	4.93	2ND	13.50	5.32
12.65	4.98	3RD	13.63	5.37
12.84	5.06	5TH	13.81	5.44
13.14	5.17	10TH	14.11	5.55
13.34	5.25	15TH	14.31	5.63
13.50	5.31	20TH	14.48	5.70
13.63	5.37	25TH	14.62	5.76
13.75	5.42	30TH	14.75	5.81
13.87	5.46	35TH	14.87	5.85
13.97	5.50	40TH	14.98	5.90
14.07	5.54	45TH	15.09	5.94
14.17	5.58	50TH	15.20	5.98
14.27	5.62	55TH	15.30	6.02
14.37	5.66	60TH	15.41	6.07
14.47	5.70	65TH	15.52	6.11
14.58	5.74	70TH	15.63	6.15
14.69	5.78	75TH	15.76	6.20
14.82	5.84	80TH	15.89	6.26
14.97	5.89	85TH	16.06	6.32
15.17	5.97	90TH	16.26	6.40
15.47	6.09	95TH	16.58	6.53
15.67	6.17	97TH	16.80	6.62
15.83	6.23	98TH	16.97	6.68
16.09	6.34	99TH	17.26	6.79



# PRONASALE-TOP OF HEAD

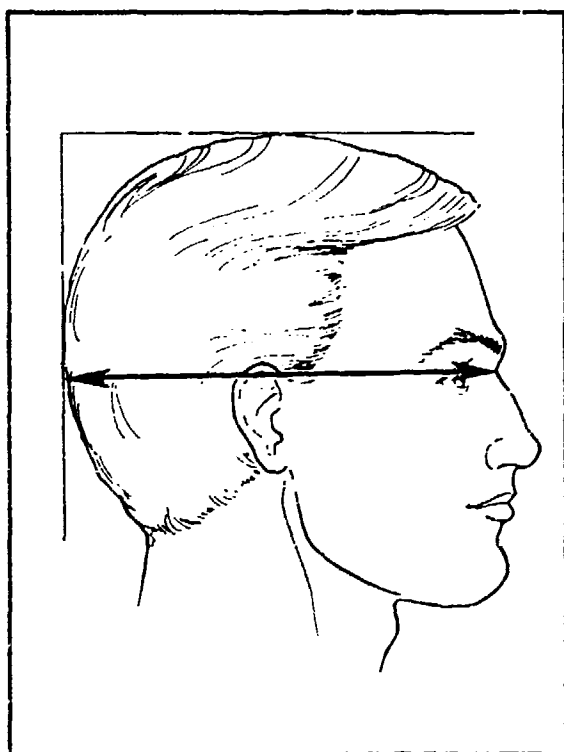
FEMALES			
CM		INCHES	
14.16	MEAN VALUE	5.58	
.02	SE(MEAN)	.00	
.79	STD DEVIATION	.31	
.00	SE(STD DEV)	.00	
11.35	MINIMUM	4.47	
16.81	MAXIMUM	6.62	
SYMMETRY---VETA I = .00			
KURTOSIS---VETA II = 3.11			
COEF. OF VARIATION = 5.6%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
15.19	MEAN VALUE	5.98	
.02	SE(MEAN)	.00	
.84	STD DEVIATION	.33	
.00	SE(STD DEV)	.00	
12.15	MINIMUM	4.78	
18.32	MAXIMUM	7.21	
SYMMETRY---VETA I = .04			
KURTOSIS---VETA II = 3.01			
COEF. OF VARIATION = 5.5%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	11.21	- 11.41						
0	.00	1	.05	11.41	- 11.61						
4	.18	5	.23	11.61	- 11.81						
3	.14	8	.36	11.81	- 12.01						
6	.27	14	.63	12.01	- 12.21	1	.06	1	.06		
17	.77	31	1.40	12.21	- 12.41	0	.00	1	.06		
30	1.36	61	2.76	12.41	- 12.61	1	.06	2	.11		
44	1.99	105	4.76	12.61	- 12.81	3	.17	5	.28		
65	2.94	170	7.70	12.81	- 13.01	1	.06	6	.34		
75	3.40	245	11.10	13.01	- 13.21	4	.23	10	.56		
110	4.98	355	16.08	13.21	- 13.41	17	.96	27	1.52		
158	7.16	513	23.23	13.41	- 13.61	19	1.07	46	2.59		
202	9.15	715	32.38	13.61	- 13.81	41	2.31	87	4.90		
217	9.83	932	42.21	13.81	- 14.01	53	2.99	140	7.89		
213	9.65	1145	51.86	14.01	- 14.21	89	4.51	220	12.40		
231	10.46	1376	62.32	14.21	- 14.41	100	5.64	320	18.04		
204	9.24	1580	71.56	14.41	- 14.61	105	5.92	425	23.96		
180	8.15	1760	79.71	14.61	- 14.81	145	8.17	570	32.13		
133	6.02	1893	85.73	14.81	- 15.01	157	8.85	727	40.98		
119	5.39	2012	91.12	15.01	- 15.21	174	9.81	901	50.79		
66	2.99	2078	94.11	15.21	- 15.41	169	9.53	1070	60.32		
48	2.17	2126	96.29	15.41	- 15.61	150	8.46	1220	68.77		
40	1.81	2166	98.10	15.61	- 15.81	130	7.33	1350	76.10		
11	.50	2177	98.60	15.81	- 16.01	128	7.22	1478	83.31		
17	.77	2194	99.37	16.01	- 16.21	89	5.02	1567	88.33		
7	.32	2201	99.68	16.21	- 16.41	80	4.51	1647	92.84		
5	.23	2206	99.91	16.41	- 16.61	55	3.10	1702	95.94		
1	.05	2207	99.95	16.61	- 16.81	23	1.30	1725	97.24		
1	.05	2208	100.00	16.81	- 17.01	19	1.07	1744	98.31		
				17.01	- 17.21	9	.51	1753	98.82		
				17.21	- 17.41	10	.56	1763	99.38		
				17.41	- 17.61	7	.39	1770	99.77		
				17.61	- 17.81	3	.17	1773	99.94		
				17.81	- 18.01	0	.00	1773	99.94		
				18.01	- 18.21	0	.00	1773	99.94		
				18.21	- 18.41	1	.06	1774	100.00		

### (H36) SELLION-BACK OF HEAD

The horizontal distance between the sellion landmark at the deepest point of the root of the nose and the vertical plane tangent to the back of the head is measured.



#### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
17.35	6.83	1ST	17.97	7.08	
17.53	6.90	2ND	18.19	7.16	
17.64	6.95	3RD	18.32	7.21	
17.80	7.01	5TH	18.51	7.29	
18.05	7.11	10TH	18.79	7.40	
18.21	7.17	15TH	18.98	7.47	
18.35	7.22	20TH	19.12	7.53	
18.46	7.27	25TH	19.25	7.58	
18.56	7.31	30TH	19.35	7.62	
18.65	7.34	35TH	19.45	7.66	
18.74	7.38	40TH	19.55	7.69	
18.82	7.41	45TH	19.63	7.73	
18.90	7.44	50TH	19.72	7.76	
18.99	7.47	55TH	19.81	7.80	
19.07	7.51	60TH	19.89	7.83	
19.15	7.54	65TH	19.98	7.87	
19.24	7.58	70TH	20.07	7.90	
19.34	7.61	75TH	20.17	7.94	
19.45	7.66	80TH	20.29	7.99	
19.57	7.70	85TH	20.42	8.04	
19.73	7.77	90TH	20.59	8.11	
19.97	7.86	95TH	20.85	8.21	
20.13	7.92	97TH	21.04	8.28	
20.25	7.97	98TH	21.18	8.34	
20.45	8.05	99TH	21.42	8.43	

# SELLION-BACK OF HEAD

## FEMALES

<u>CM</u>		<u>INCHES</u>
18.90	MEAN VALUE	7.44
.00	SE (MEAN)	.00
.66	STD DEVIATION	.26
.00	SE (STD DEV)	.00
15.85	MINIMUM	6.24
20.96	MAXIMUM	8.25

SYMMETRY---VETA I = -.10  
 KURTOSIS---VETA II = 3.28  
 COEF. OF VARIATION = 3.5%  
 NUMBER OF SUBJECTS = 2208

## MALES

<u>CM</u>		<u>INCHES</u>
19.70	MEAN VALUE	7.76
.02	SE (MEAN)	.00
.71	STD DEVIATION	.28
.00	SE (STD DEV)	.00
17.41	MINIMUM	6.85
22.08	MAXIMUM	8.69

SYMMETRY---VETA I = -.05  
 KURTOSIS---VETA II = 3.17  
 COEF. OF VARIATION = 3.6%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

<u>F</u>	<u>FPct</u>	<u>CumF</u>	<u>CumFPct</u>
1	.05	1	.05
0	.00	1	.05
1	.05	2	.09
2	.09	4	.18
1	.05	5	.23
1	.05	6	.27
2	.09	8	.36
14	.63	22	1.00
29	1.31	51	2.31
38	1.72	89	4.03
78	3.53	167	7.56
113	5.12	280	12.68
149	6.75	429	19.43
200	9.06	629	28.49
273	12.36	902	40.85
259	11.73	1161	52.58
268	12.14	1429	64.72
235	10.64	1664	75.36
203	9.19	1867	84.56
140	6.34	2007	90.90
79	3.58	2086	94.47
58	2.63	2144	97.10
27	1.22	2171	98.32
25	1.13	2196	99.46
7	.32	2203	99.77
4	.18	2207	99.95
1	.05	2208	100.00

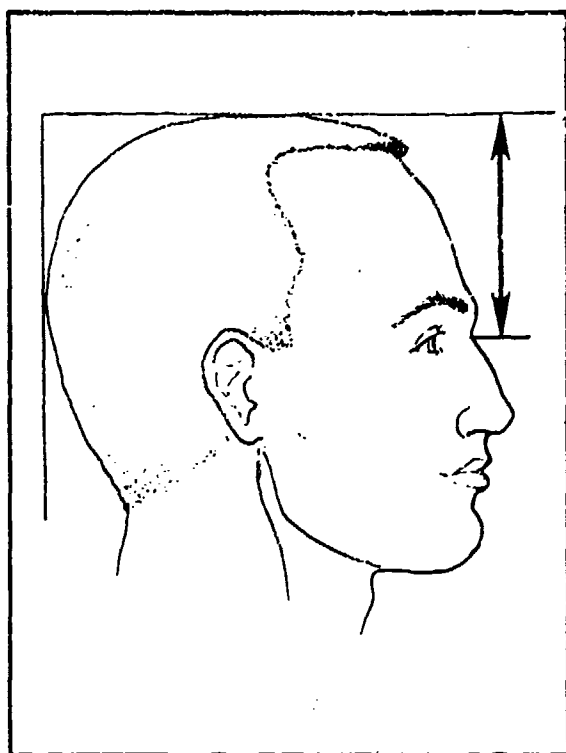
<u>CENTIMETERS</u>
15.75 - 15.95
15.95 - 16.15
16.15 - 16.35
16.35 - 16.55
16.55 - 16.75
16.75 - 16.95
16.95 - 17.15
17.15 - 17.35
17.35 - 17.55
17.55 - 17.75
17.75 - 17.95
17.95 - 18.15
18.15 - 18.35
18.35 - 18.55
18.55 - 18.75
18.75 - 18.95
18.95 - 19.15
19.15 - 19.35
19.35 - 19.55
19.55 - 19.75
19.75 - 19.95
19.95 - 20.15
20.15 - 20.35
20.35 - 20.55
20.55 - 20.75
20.75 - 20.95
20.95 - 21.15
21.15 - 21.35
21.35 - 21.55
21.55 - 21.75
21.75 - 21.95
21.95 - 22.15

### MALES

<u>F</u>	<u>FPct</u>	<u>CumF</u>	<u>CumFPct</u>
2	.11	2	.11
6	.34	8	.45
9	.51	17	.96
14	.79	31	1.75
20	1.13	51	2.87
47	2.65	98	5.52
69	3.89	167	9.41
82	4.62	249	14.04
131	7.38	380	21.42
150	8.46	530	29.88
182	10.26	712	40.14
207	11.67	919	51.80
182	10.26	1101	62.06
204	11.50	1305	73.56
160	9.02	1465	82.58
116	6.54	1581	89.12
74	4.17	1655	93.29
52	2.93	1707	96.22
26	1.47	1733	97.69
18	1.01	1751	98.70
12	.68	1763	99.38
7	.39	1770	99.77
0	.00	1770	99.77
4	.23	1774	100.00

### (H37) SELLION-TOP OF HEAD

The vertical distance between the sellion landmark at the deepest point of the root of the nose and the horizontal plane tangent to the top of the head is measured.



#### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
9.04	3.56	1ST	9.66	3.80	
9.21	3.63	2ND	9.84	3.87	
9.32	3.67	3RD	9.95	3.92	
9.47	3.73	5TH	10.10	3.98	
9.70	3.82	10TH	10.34	4.07	
9.86	3.88	15TH	10.50	4.13	
9.98	3.93	20TH	10.63	4.18	
10.09	3.97	25TH	10.74	4.23	
10.18	4.01	30TH	10.84	4.27	
10.27	4.04	35TH	10.93	4.30	
10.35	4.08	40TH	11.02	4.34	
10.43	4.11	45TH	11.10	4.37	
10.51	4.14	50TH	11.19	4.40	
10.59	4.17	55TH	11.27	4.44	
10.68	4.20	60TH	11.36	4.47	
10.76	4.24	65TH	11.45	4.51	
10.85	4.27	70TH	11.55	4.55	
10.95	4.31	75TH	11.65	4.59	
11.07	4.36	80TH	11.77	4.63	
11.20	4.41	85TH	11.91	4.69	
11.38	4.48	90TH	12.09	4.76	
11.65	4.59	95TH	12.37	4.87	
11.84	4.66	97TH	12.56	4.95	
11.98	4.72	98TH	12.71	5.00	
12.22	4.81	99TH	12.94	5.10	

# SELLION-TOP OF HEAD

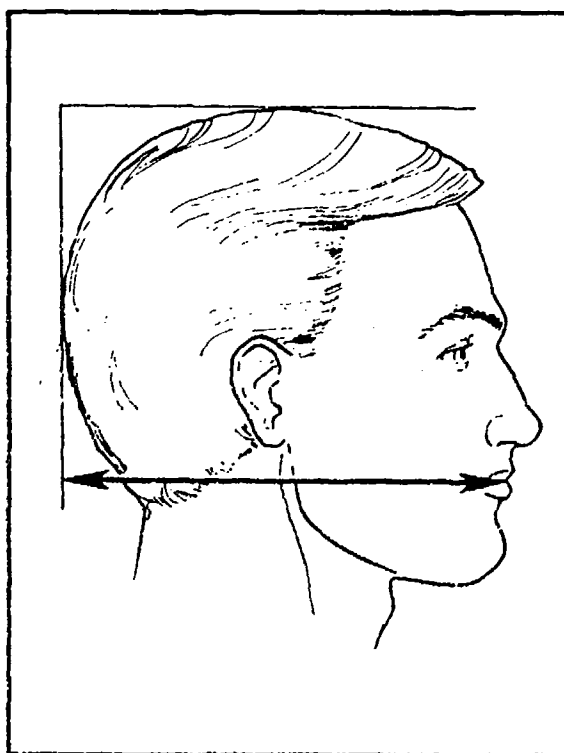
FEMALES			
<u>CM</u>		<u>INCHES</u>	
10.53	MEAN VALUE	4.15	
.00	SE (MEAN)	.00	
.66	STD DEVIATION	.26	
.00	SE (STD DEV)	.00	
8.13	MINIMUM	3.20	
13.33	MAXIMUM	5.25	
SYMMETRY---VETA I = .19			
KURTOSIS---VETA II = 3.30			
COEF. OF VARIATION = 6.3%			
NUMBER OF SUBJECTS = 2208			

MALES			
<u>CM</u>		<u>INCHES</u>	
11.20	MEAN VALUE	4.41	
.02	SE (MEAN)	.00	
.69	STD DEVIATION	.27	
.00	SE (STD DEV)	.00	
8.96	MINIMUM	3.53	
13.69	MAXIMUM	5.39	
SYMMETRY---VETA I = .14			
KURTOSIS---VETA II = 3.09			
COEF. OF VARIATION = 6.2%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
<u>F</u>	<u>FPct</u>	<u>CumF</u>	<u>CumFPct</u>	<u>CENTIMETERS</u>		<u>F</u>	<u>FPct</u>	<u>CumF</u>	<u>CumFPct</u>		
2	.09	2	.09	8.05 -	8.25	2	.11	2	.11		
0	.00	2	.09	8.25 -	8.45	1	.06	3	.17		
1	.05	3	.14	8.45 -	8.65	6	.34	9	.51		
4	.18	7	.32	8.65 -	8.85	10	.56	19	1.07		
14	.63	21	.95	8.85 -	9.05	15	.85	34	1.92		
29	1.31	50	2.26	9.05 -	9.25	36	2.03	70	3.95		
51	2.31	101	4.57	9.25 -	9.45	71	4.00	141	7.95		
72	3.26	173	7.84	9.45 -	9.65	100	5.64	241	13.59		
141	6.39	214	14.22	9.65 -	9.85	143	8.06	384	21.65		
206	9.33	520	23.55	9.85 -	10.05	163	9.19	547	30.83		
224	10.14	744	33.70	10.05 -	10.25	187	10.54	734	41.38		
264	11.96	1008	45.65	10.25 -	10.45	199	11.22	933	52.59		
262	11.87	1270	57.52	10.45 -	10.65	210	11.84	1143	64.43		
267	12.09	1537	69.61	10.65 -	10.85	171	9.64	1314	74.07		
210	9.51	1747	79.12	10.85 -	11.05	163	9.19	1477	83.26		
161	7.29	1908	86.41	11.05 -	11.25	104	5.86	1581	89.12		
114	5.16	2022	91.58	11.25 -	11.45	73	4.11	1654	93.24		
76	3.44	2098	95.02	11.45 -	11.65	51	2.87	1705	96.11		
43	1.95	2141	96.97	11.65 -	11.85	27	1.52	1732	97.63		
32	1.45	2173	98.41	11.85 -	12.05	18	1.01	1750	98.65		
16	.72	2189	99.14	12.05 -	12.25	11	.62	1761	99.27		
10	.45	2199	99.59	12.25 -	12.45	10	.56	1771	99.83		
3	.14	2202	99.73	12.45 -	12.65	1	.06	1772	99.89		
5	.23	2207	99.95	12.65 -	12.85	1	.06	1773	99.94		
0	.00	2207	99.95	12.85 -	13.05	1	.06	1774	100.00		
0	.00	2207	99.95	13.05 -	13.25						
1	.05	2208	100.00	13.25 -	13.45						
				13.45 -	13.65						
				13.65 -	13.85						

## (H38) STOMION-BACK OF HEAD

The horizontal distance between the stomion landmark at the center of the mouth where the lips touch when the mouth is closed and the vertical plane tangent to the back of the head is measured.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
17.14	6.75	1ST	17.77	7.00
17.39	6.85	2ND	18.02	7.09
17.54	6.91	3RD	18.18	7.16
17.74	6.99	5TH	18.39	7.24
18.06	7.11	10TH	18.72	7.37
18.27	7.19	15TH	18.95	7.46
18.45	7.26	20TH	19.13	7.53
18.60	7.32	25TH	19.29	7.59
18.75	7.38	30TH	19.43	7.65
18.88	7.43	35TH	19.56	7.70
19.01	7.49	40TH	19.69	7.75
19.14	7.54	45TH	19.81	7.80
19.28	7.59	50TH	19.93	7.85
19.41	7.64	55TH	20.05	7.89
19.54	7.69	60TH	20.17	7.94
19.69	7.75	65TH	20.30	7.99
19.84	7.81	70TH	20.44	8.05
20.00	7.88	75TH	20.58	8.10
20.19	7.95	80TH	20.75	8.17
20.40	8.03	85TH	20.94	8.24
20.66	8.14	90TH	21.19	8.34
21.03	8.28	95TH	21.55	8.48
21.24	8.36	97TH	21.79	8.58
21.38	8.42	98TH	21.96	8.65
21.56	8.49	99TH	22.23	8.75

# STOMION-BACK OF HEAD

## FEMALES

<u>CM</u>		<u>INCHES</u>
19.31	MEAN VALUE	7.60
.02	SE(MEAN)	.00
.99	STD DEVIATION	.39
.00	SE(STD DEV)	.00
16.25	MINIMUM	6.40
22.26	MAXIMUM	8.76

SYMMETRY---VETA I = .09  
 KURTOSIS---VETA II = 2.72  
 COEF. OF VARIATION = 5.2%  
 NUMBER OF SUBJECTS = 2208

## MALES

<u>CM</u>		<u>INCHES</u>
19.94	MEAN VALUE	7.85
.02	SE(MEAN)	.00
.96	STD DEVIATION	.38
.02	SE(STD DEV)	.00
16.39	MINIMUM	6.45
23.30	MAXIMUM	9.17

SYMMETRY---VETA I = .08  
 KURTOSIS---VETA II = 3.10  
 COEF. OF VARIATION = 4.8%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
4	.18	4	.18
0	.00	4	.18
2	.09	6	.27
9	.41	15	.68
6	.27	21	.95
13	.59	34	1.54
35	1.59	69	3.13
47	2.13	116	5.25
63	2.85	179	8.11
81	3.67	260	11.78
110	4.98	370	16.76
130	5.89	500	22.64
164	7.43	664	30.07
156	7.07	820	37.14
177	8.02	997	45.15
156	7.07	1153	52.22
185	8.38	1338	60.60
147	6.66	1485	67.26
133	6.02	1618	73.28
128	5.80	1746	79.08
100	4.53	1846	83.61
98	4.44	1944	88.04
79	3.58	2023	91.62
63	2.85	2086	94.47
40	1.81	2126	96.29
31	1.40	2157	97.69
27	1.22	2184	98.91
14	.63	2198	99.55
6	.27	2204	99.82
2	.09	2206	99.91
2	.09	2208	100.00

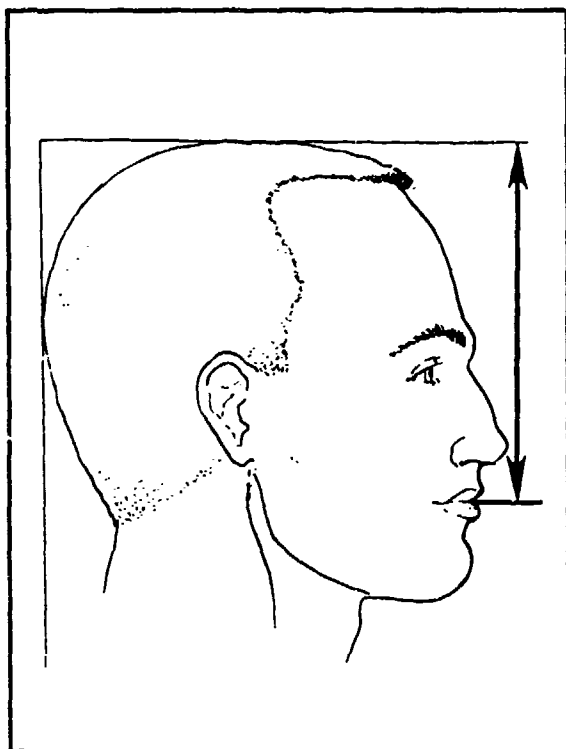
<u>CENTIMETERS</u>
16.15 - 16.35
16.35 - 16.55
16.55 - 16.75
16.75 - 16.95
16.95 - 17.15
17.15 - 17.35
17.35 - 17.55
17.55 - 17.75
17.75 - 17.95
17.95 - 18.15
18.15 - 18.35
18.35 - 18.55
18.55 - 18.75
18.75 - 18.95
18.95 - 19.15
19.15 - 19.35
19.35 - 19.55
19.55 - 19.75
19.75 - 19.95
19.95 - 20.15
20.15 - 20.35
20.35 - 20.55
20.55 - 20.75
20.75 - 20.95
20.95 - 21.15
21.15 - 21.35
21.35 - 21.55
21.55 - 21.75
21.75 - 21.95
21.95 - 22.15
22.15 - 22.35
22.35 - 22.55
22.55 - 22.75
22.75 - 22.95
22.95 - 23.15
23.15 - 23.35

### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
0	.00	1	.06
2	.11	3	.17
0	.00	3	.17
4	.23	7	.39
4	.23	11	.62
7	.39	18	1.01
9	.51	27	1.52
19	1.07	46	2.59
32	1.80	78	4.40
51	2.87	129	7.27
62	3.49	191	10.77
67	3.78	258	14.54
102	5.75	360	20.29
116	6.54	476	26.83
127	7.16	603	33.99
138	7.78	741	41.77
148	8.34	889	50.11
157	8.85	1046	58.96
148	8.34	1194	67.31
120	6.76	1314	74.07
104	5.86	1418	79.93
89	5.02	1507	84.95
74	4.17	1581	89.12
55	3.10	1636	92.22
48	2.71	1684	94.93
33	1.86	1717	96.79
26	1.47	1743	98.25
11	.62	1754	98.87
5	.28	1759	99.15
7	.39	1766	99.55
1	.06	1767	99.61
4	.23	1771	99.83
1	.06	1772	99.89
2	.11	1774	100.00

### (H39) STOMION-TOP OF HEAD

The vertical distance between the stomion landmark at the center of the mouth where the lips touch when the mouth is closed and the horizontal plane tangent to the top of the head is measured.



#### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
15.66	6.17	1ST	16.94	6.67
15.91	6.27	2ND	17.12	6.74
16.07	6.32	3RD	17.23	6.78
16.26	6.40	5TH	17.39	6.85
16.55	6.51	10TH	17.65	6.95
16.73	6.59	15TH	17.83	7.02
16.88	6.64	20TH	17.97	7.07
17.00	6.69	25TH	18.09	7.12
17.11	6.74	30TH	18.21	7.17
17.21	6.78	35TH	18.31	7.21
17.31	6.81	40TH	18.41	7.25
17.40	6.85	45TH	18.51	7.29
17.50	6.89	50TH	18.61	7.33
17.59	6.93	55TH	18.70	7.36
17.69	6.96	60TH	18.80	7.40
17.79	7.00	65TH	18.91	7.44
17.90	7.05	70TH	19.02	7.49
18.02	7.09	75TH	19.14	7.53
18.15	7.15	80TH	19.27	7.59
18.30	7.21	85TH	19.43	7.65
18.50	7.29	90TH	19.63	7.73
18.80	7.40	95TH	19.94	7.85
19.00	7.48	97TH	20.15	7.93
19.14	7.54	98TH	20.30	7.99
19.37	7.62	99TH	20.55	8.09



# STOMION-TOP OF HEAD

## FEMALES

CM		INCHES
17.51	MEAN VALUE	6.89
.02	SE(MEAN)	.00
.77	STD DEVIATION	.30
.00	SE(STD DEV)	.00
14.73	MINIMUM	5.80
20.01	MAXIMUM	7.88

SYMMETRY---VETA I = .03  
 KURTOSIS---VETA II = 3.10  
 COEF. OF VARIATION = 4.4%  
 NUMBER OF SUBJECTS = 2208

## MALES

CM		INCHES
18.63	MEAN VALUE	7.33
.02	SE(MEAN)	.00
.78	STD DEVIATION	.31
.00	SE(STD DEV)	.00
16.11	MINIMUM	6.34
21.23	MAXIMUM	8.36

SYMMETRY---VETA I = .15  
 KURTOSIS---VETA II = 2.99  
 COEF. OF VARIATION = 4.2%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
1	.05	1	.05
0	.00	1	.05
3	.14	4	.18
7	.32	11	.50
7	.32	18	.82
20	.91	38	1.72
22	1.00	60	2.72
43	1.95	103	4.66
67	3.03	170	7.70
99	4.48	269	12.18
152	6.88	421	19.07
175	7.93	596	26.99
205	9.28	801	36.28
242	10.96	1043	47.24
216	9.78	1259	57.02
235	10.64	1494	67.66
185	8.38	1679	76.04
168	7.61	1847	83.65
113	5.12	1960	88.77
87	3.94	2047	92.71
64	2.90	2111	95.61
39	1.77	2150	97.37
25	1.13	2175	98.51
17	.77	2192	99.28
10	.45	2202	99.73
4	.18	2206	99.91
2	.09	2208	100.00

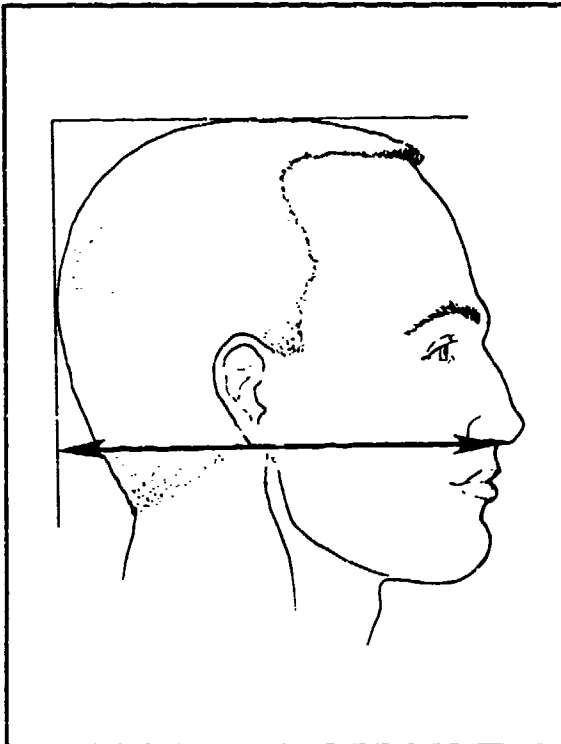
CENTIMETERS
14.65 - 14.85
14.85 - 15.05
15.05 - 15.25
15.25 - 15.45
15.45 - 15.65
15.65 - 15.85
15.85 - 16.05
16.05 - 16.25
16.25 - 16.45
16.45 - 16.65
16.65 - 16.85
16.85 - 17.05
17.05 - 17.25
17.25 - 17.45
17.45 - 17.65
17.65 - 17.85
17.85 - 18.05
18.05 - 18.25
18.25 - 18.45
18.45 - 18.65
18.65 - 18.85
18.85 - 19.05
19.05 - 19.25
19.25 - 19.45
19.45 - 19.65
19.65 - 19.85
19.85 - 20.05
20.05 - 20.25
20.25 - 20.45
20.45 - 20.65
20.65 - 20.85
20.85 - 21.05
21.05 - 21.25

### MALES

F	FPct	CumF	CumFPct
2	.11	2	.11
2	.11	4	.23
3	.17	7	.39
7	.39	14	.79
10	.56	24	1.35
30	1.69	54	3.04
50	2.82	104	5.86
82	4.62	186	10.48
95	5.36	281	15.84
129	7.27	410	23.11
151	8.51	561	31.62
182	10.26	743	41.88
182	10.26	925	52.14
166	9.36	1091	61.50
176	9.92	1267	71.42
122	6.88	1389	78.30
128	7.22	1517	85.51
74	4.17	1591	89.68
61	3.44	1652	93.12
57	3.21	1709	96.34
28	1.58	1737	97.91
13	.73	1750	98.65
8	.45	1758	99.10
9	.51	1767	99.61
5	.28	1772	99.89
2	.11	1774	100.00

## (H40) SUBNASALE-BACK OF HEAD

The horizontal distance between the subnasale landmark under the nose and the vertical plane tangent to the back of the head is measured.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
17.70	6.97	1ST	18.35	7.22	
17.93	7.06	2ND	18.58	7.31	
18.08	7.12	3RD	18.73	7.38	
18.27	7.19	5TH	18.95	7.46	
18.56	7.31	10TH	19.28	7.59	
18.75	7.38	15TH	19.51	7.68	
18.90	7.44	20TH	19.68	7.75	
19.03	7.49	25TH	19.83	7.81	
19.15	7.54	30TH	19.95	7.86	
19.26	7.58	35TH	20.07	7.90	
19.36	7.62	40TH	20.18	7.94	
19.46	7.66	45TH	20.28	7.99	
19.56	7.70	50TH	20.38	8.03	
19.66	7.74	55TH	20.48	8.06	
19.77	7.78	60TH	20.58	8.10	
19.87	7.82	65TH	20.68	8.14	
19.98	7.87	70TH	20.79	8.16	
20.10	7.92	75TH	20.90	8.23	
20.24	7.97	80TH	21.03	8.28	
20.40	8.03	85TH	21.17	8.34	
20.60	8.11	90TH	21.36	8.41	
20.90	8.23	95TH	21.66	8.53	
21.09	8.30	97TH	21.87	8.61	
21.23	8.36	98TH	22.04	8.68	
21.44	8.44	99TH	22.32	8.79	

# SUBNASALE-BACK OF HEAD

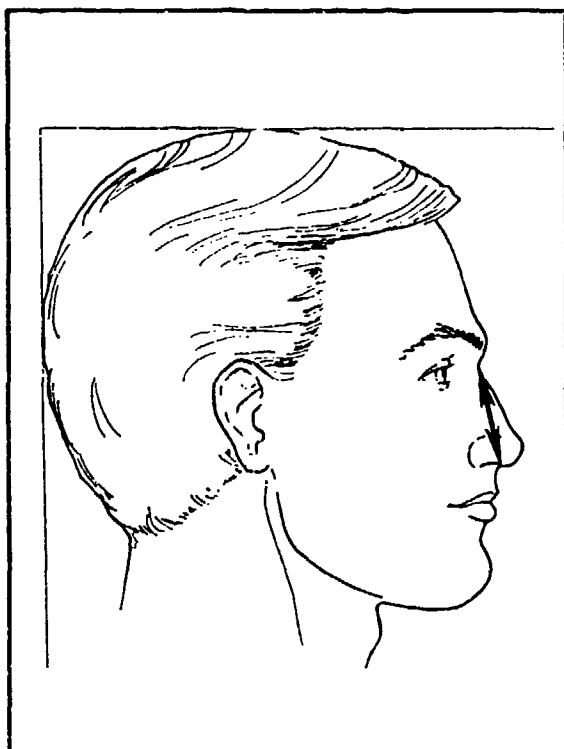
FEMALES		
CM		INCHES
19.57	MEAN VALUE	7.70
.02	SE (MEAN)	.00
.80	STD DEVIATION	.31
.00	SE (STD DEV)	.00
16.44	MINIMUM	6.47
22.03	MAXIMUM	8.67
SYMMETRY---VETA I = -.04		
KURTOSIS---VETA II = 3.17		
COEF. OF VARIATION = 4.1%		
NUMBER OF SUBJECTS = 2208		

MALES		
CM		INCHES
20.35	MEAN VALUE	8.01
.02	SE (MEAN)	.00
.83	STD DEVIATION	.33
.00	SE (STD DEV)	.00
17.36	MINIMUM	6.84
23.06	MAXIMUM	9.08
SYMMETRY---VETA I = -.09		
KURTOSIS---VETA II = 3.31		
COEF. OF VARIATION = 4.1%		
NUMBER OF SUBJECTS = 1774		

FREQUENCY TABLE									
FEMALES					MALES				
F	FPct	CumF	CumFPct	CENTIMETERS	F	FPct	CumF	CumFPct	
1	.05	1	.05	16.35 - 16.55					
2	.09	3	.14	16.55 - 16.75					
2	.09	5	.23	16.75 - 16.95					
0	.00	5	.23	16.95 - 17.15					
5	.23	10	.45	17.15 - 17.35					
3	.14	13	.59	17.35 - 17.55					
10	.45	23	1.04	17.55 - 17.75	3	.17	3	.17	
25	1.13	48	2.17	17.75 - 17.95	0	.00	3	.17	
32	1.45	80	3.62	17.95 - 18.15	2	.11	5	.28	
50	2.26	130	5.89	18.15 - 18.35	5	.28	10	.56	
88	3.99	218	9.87	18.35 - 18.55	7	.39	17	.96	
111	5.03	329	14.90	18.55 - 18.75	14	.79	31	1.75	
136	6.16	465	21.06	18.75 - 18.95	24	1.35	55	3.10	
185	8.38	650	29.44	18.95 - 19.15	24	1.35	79	4.45	
215	9.74	865	39.18	19.15 - 19.35	44	2.48	123	6.93	
212	9.60	1077	48.78	19.35 - 19.55	76	4.28	199	11.22	
203	9.19	1280	57.97	19.55 - 19.75	100	5.64	299	16.85	
250	11.32	1530	69.29	19.75 - 19.95	101	5.69	400	22.55	
196	8.88	1726	78.17	19.95 - 20.15	132	7.44	532	29.99	
124	5.62	1850	83.79	20.15 - 20.35	143	8.06	675	38.05	
109	4.94	1959	88.72	20.35 - 20.55	165	9.30	840	47.35	
91	4.12	2050	92.84	20.55 - 20.75	184	10.37	1024	57.72	
55	2.49	2105	95.34	20.75 - 20.95	190	10.71	1214	68.43	
40	1.81	2145	97.15	20.95 - 21.15	143	8.06	1357	76.49	
33	1.49	2178	98.64	21.15 - 21.35	128	7.22	1485	83.71	
19	.86	2197	99.50	21.35 - 21.55	105	5.92	1590	89.63	
6	.27	2203	99.77	21.55 - 21.75	71	4.00	1661	93.63	
3	.14	2206	99.91	21.75 - 21.95	46	2.59	1707	96.22	
2	.09	2208	100.00	21.95 - 22.15	26	1.47	1733	97.69	
				22.15 - 22.35	12	.68	1745	98.37	
				22.35 - 22.55	12	.68	1757	99.04	
				22.55 - 22.75	5	.28	1762	99.32	
				22.75 - 22.95	6	.34	1768	99.66	
				22.95 - 23.15	1	.06	1769	99.72	
					5	.28	1774	100.00	

## (H41) SUBNASALE-SELLION LENGTH

The straight-line distance between the subnasale landmark under the nose and the sellion landmark at the deepest point of the nasal root is measured.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
3.99	1.57	1ST	4.17	1.64	
4.09	1.61	2ND	4.28	1.69	
4.16	1.64	3RD	4.35	1.71	
4.24	1.67	5TH	4.44	1.75	
4.36	1.72	10TH	4.57	1.80	
4.44	1.75	15TH	4.66	1.84	
4.51	1.78	20TH	4.73	1.86	
4.57	1.80	25TH	4.80	1.89	
4.62	1.82	30TH	4.85	1.91	
4.67	1.84	35TH	4.90	1.93	
4.71	1.86	40TH	4.95	1.95	
4.76	1.87	45TH	5.00	1.97	
4.80	1.89	50TH	5.05	1.99	
4.85	1.91	55TH	5.10	2.01	
4.89	1.93	60TH	5.14	2.03	
4.94	1.95	65TH	5.19	2.05	
5.00	1.97	70TH	5.25	2.07	
5.05	1.99	75TH	5.30	2.09	
5.12	2.02	80TH	5.37	2.11	
5.20	2.05	85TH	5.44	2.14	
5.30	2.09	90TH	5.54	2.18	
5.45	2.15	95TH	5.68	2.23	
5.55	2.19	97TH	5.77	2.27	
5.63	2.22	98TH	5.83	2.30	
5.75	2.26	99TH	5.93	2.34	

### SUBNASALE-SELLION LENGTH

## FEMALES

<u>CM</u>		<u>INCHES</u>
4.82	MEAN VALUE	1.90
.00	SE(MEAN)	.00
.36	STD DEVIATION	.14
.00	SE(STD DEV)	.00
3.43	MINIMUM	1.35
6.46	MAXIMUM	2.54

SYMMETRY---VETA I	=	.19
KU OSIS---VETA II	=	3.24
COEF. OF VARIATION	=	7.6%
NUMBER OF SUBJECTS	=	2208

**MALES**

<u>CM</u>		<u>INCHES</u>
5.05	MEAN VALUE	1.99
.00	SE(MEAN)	.00
.37	STD DEVIATION	.15
.00	SE(STD DEV)	.00
3.69	MINIMUM	1.45
6.25	MAXIMUM	2.46

SYMMETRY---VETA I	=	.00
KURTOSIS---VETA II	=	2.90
COEF. OF VARIATION	=	7.4%
NUMBER OF SUBJECTS	=	1774

### FREQUENCY TABLE

## FEMALES

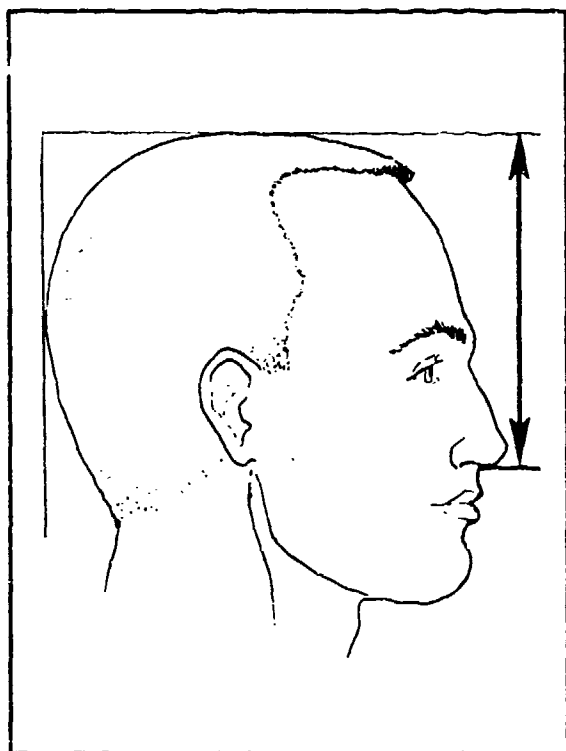
F	FPct	CumF	CumFPct
1	.05	1	.05
0	.00	1	.05
0	.00	1	.05
2	.09	3	.14
4	.18	7	.32
9	.41	16	.72
12	.54	28	1.27
33	1.49	61	2.76
45	2.04	106	4.80
90	4.08	196	8.88
129	5.84	325	14.72
179	8.11	504	22.83
220	9.96	724	32.79
221	10.01	945	42.80
245	11.10	1190	53.89
249	11.28	1439	65.77
215	9.74	1654	74.91
166	7.52	1820	82.43
124	5.62	1944	88.04
86	3.89	2030	91.94
60	2.72	2090	94.66
50	2.26	2140	96.92
29	1.31	2169	98.23
23	1.04	2192	99.28
9	.41	2201	99.68
3	.14	2204	99.82
2	.09	2206	99.91
1	.05	2207	99.95
0	.00	2207	99.95
0	.00	2207	99.95
0	.00	2207	99.95
1	.05	2208	100.00

### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
0	.00	1	.06
0	.00	1	.06
2	.11	3	.17
10	.56	13	.73
14	.79	27	1.52
26	1.47	53	2.99
42	2.37	95	5.36
65	3.66	160	9.02
89	5.02	249	14.04
117	6.60	366	20.63
159	8.96	525	29.59
163	9.19	688	38.78
193	10.88	881	49.66
182	10.26	1063	59.92
188	10.60	1251	70.52
143	8.06	1394	78.58
122	6.88	1516	85.46
94	5.30	1610	90.76
62	3.49	1672	94.25
43	2.42	1715	96.67
30	1.69	1745	98.37
16	.90	1761	99.27
9	.51	1770	99.77
3	.17	1773	99.94
0	.00	1773	99.94
1	.06	1774	100.00

## (H42) SUBNASALE-TOP OF HEAD

The vertical distance between the subnasale landmark under the nose and the horizontal plane tangent to the top of the head is measured.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
13.50	5.31	1ST	14.45	5.69	
13.71	5.40	2ND	14.64	5.76	
13.85	5.45	3RD	14.77	5.81	
14.04	5.53	5TH	14.94	5.88	
14.32	5.64	10TH	15.21	5.99	
14.51	5.71	15TH	15.40	6.06	
14.66	5.77	20TH	15.54	6.12	
14.79	5.82	25TH	15.67	6.17	
14.90	5.87	30TH	15.78	6.21	
15.00	5.91	35TH	15.89	6.25	
15.10	5.95	40TH	15.99	6.29	
15.20	5.98	45TH	16.08	6.33	
15.29	6.02	50TH	16.18	6.37	
15.38	6.05	55TH	16.28	6.41	
15.47	6.09	60TH	16.38	6.45	
15.57	6.13	65TH	16.48	6.49	
15.67	6.17	70TH	16.58	6.53	
15.78	6.21	75TH	16.70	6.57	
15.90	6.26	80TH	16.83	6.63	
16.04	6.31	85TH	16.98	6.69	
16.22	6.39	90TH	17.18	6.76	
16.49	6.49	95TH	17.47	6.88	
16.68	6.57	97TH	17.66	6.95	
16.82	6.62	98TH	17.80	7.01	
17.05	6.71	99TH	18.02	7.10	

# SUBNASALE-TOP OF HEAD

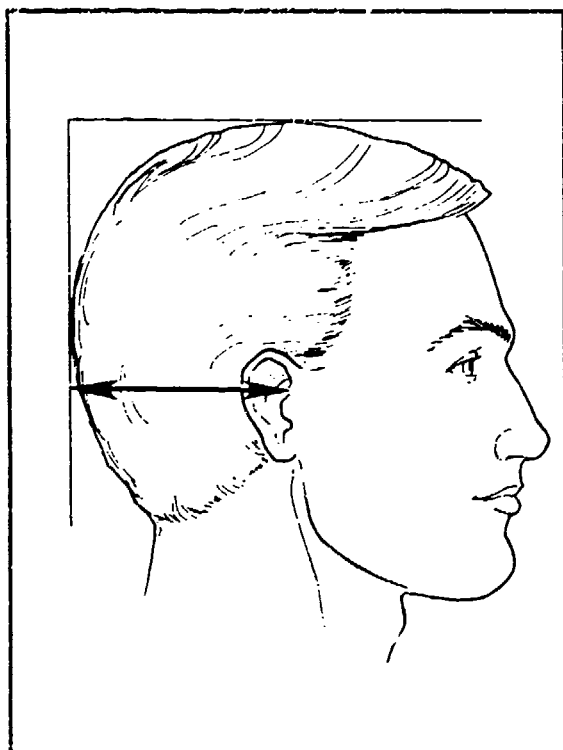
FEMALES			
CM		INCHES	
15.28	MEAN VALUE	6.02	
.02	SE (MEAN)	.00	
.74	STD DEVIATION	.29	
.00	SE (STD DEV)	.00	
12.78	MINIMUM	5.03	
17.90	MAXIMUM	7.05	
SYMMETRY---VETA I = -.06			
KURTOSIS---VETA II = 3.14			
COEF. OF VARIATION = 4.9%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
16.19	MEAN VALUE	6.37	
.02	SE (MEAN)	.00	
.77	STD DEVIATION	.30	
.00	SE (STD DEV)	.00	
13.73	MINIMUM	5.41	
18.91	MAXIMUM	7.44	
SYMMETRY---VETA I = .05			
KURTOSIS---VETA II = 3.01			
COEF. OF VARIATION = 4.8%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
4	.18	4	.18	12.75 -	12.95	2	.11	2	.11		
5	.23	9	.41	12.95 -	13.15	1	.06	3	.17		
6	.27	15	.68	13.15 -	13.35	4	.23	7	.39		
10	.45	25	1.13	13.35 -	13.55	7	.39	14	.79		
23	1.04	48	2.17	13.55 -	13.75	11	.62	25	1.41		
37	1.68	85	3.85	13.75 -	13.95	20	1.13	45	2.54		
58	2.63	143	6.48	13.95 -	14.15	48	2.71	93	5.24		
95	4.30	238	10.78	14.15 -	14.35	59	3.33	152	8.57		
104	4.71	342	15.49	14.35 -	14.55	100	5.64	252	14.21		
163	7.38	505	22.87	14.55 -	14.75	105	5.92	357	20.12		
205	9.28	710	32.16	14.75 -	14.95	150	8.46	507	28.58		
218	9.87	928	42.03	14.95 -	15.15	161	9.08	668	37.66		
249	11.28	1177	53.31	15.15 -	15.35	187	10.54	855	48.20		
241	10.91	1418	64.22	15.35 -	15.55	189	10.65	1044	58.85		
215	9.74	1633	73.96	15.55 -	15.75	150	8.46	1194	67.31		
166	7.52	1799	81.48	15.75 -	15.95	159	8.96	1353	76.27		
146	6.61	1945	88.09	15.95 -	16.15	145	8.17	1498	84.44		
102	4.62	2047	92.71	16.15 -	16.35	84	4.74	1582	89.18		
75	3.40	2122	96.11	16.35 -	16.55	73	4.11	1655	93.29		
32	1.45	2154	97.55	16.55 -	16.75	49	2.76	1704	96.05		
25	1.13	2179	98.69	16.75 -	16.95	28	1.58	1732	97.63		
14	.63	2193	99.32	16.95 -	17.15	18	1.01	1750	98.65		
6	.27	2199	99.59	17.15 -	17.35	12	.68	1762	99.32		
8	.36	2207	99.95	17.35 -	17.55	8	.45	1770	99.77		
0	.00	2207	99.95	17.55 -	17.75	0	.00	1770	99.77		
1	.05	2208	100.00	17.75 -	17.95	2	.11	1772	99.89		
				17.95 -	18.15	2	.11	1774	100.00		
				18.15 -	18.35						
				18.35 -	18.55						
				18.55 -	18.75						
				18.75 -	18.95						

## (H43) TRAGION-BACK OF HEAD

The horizontal distance between the tragion landmark on the cartilaginous flap in front of the earhole and the vertical plane tangent to the back of the head is measured.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
8.48	3.34	1ST	8.54	3.36	
8.62	3.40	2ND	8.70	3.43	
8.72	3.43	3RD	8.80	3.46	
8.84	3.48	5TH	8.94	3.52	
9.04	3.56	10TH	9.15	3.60	
9.17	3.61	15TH	9.29	3.66	
9.28	3.65	20TH	9.40	3.70	
9.37	3.69	25TH	9.50	3.74	
9.45	3.72	30TH	9.59	3.78	
9.53	3.75	35TH	9.67	3.81	
9.60	3.78	40TH	9.75	3.84	
9.67	3.81	45TH	9.82	3.87	
9.74	3.83	50TH	9.89	3.89	
9.81	3.86	55TH	9.97	3.92	
9.88	3.89	60TH	10.04	3.95	
9.95	3.92	65TH	10.12	3.98	
10.02	3.95	70TH	10.20	4.01	
10.11	3.98	75TH	10.28	4.05	
10.20	4.02	80TH	10.38	4.09	
10.31	4.06	85TH	10.50	4.13	
10.44	4.11	90TH	10.54	4.19	
10.64	4.19	95TH	10.65	4.27	
10.77	4.24	97TH	10.99	4.33	
10.86	4.28	98TH	11.10	4.37	
11.01	4.34	99TH	11.26	4.43	



# TRAGION-BACK OF HEAD

## FEMALES

CM		INCHES
9.74	MEAN VALUE	3.83
.00	SE (MEAN)	.00
.55	STD DEVIATION	.22
.00	SE (STD DEV)	.00
7.98	MINIMUM	3.14
11.75	MAXIMUM	4.63

SYMMETRY---VETA I = .07  
 KURTOSIS---VETA II = 3.11  
 COEF. OF VARIATION = 5.6%  
 NUMBER OF SUBJECTS = 2208

## MALES

CM		INCHES
9.89	MEAN VALUE	3.90
.00	SE (MEAN)	.00
.58	STD DEVIATION	.23
.00	SE (STD DEV)	.00
8.04	MINIMUM	3.16
12.03	MAXIMUM	4.74

SYMMETRY---VETA I = .04  
 KURTOSIS---VETA II = 3.09  
 COEF. OF VARIATION = 5.9%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
1	.05	1	.05
3	.14	4	.18
3	.14	7	.32
3	.14	10	.45
8	.36	18	.82
11	.50	29	1.31
19	.86	48	2.17
30	1.36	78	3.53
34	1.54	112	5.07
48	2.17	160	7.25
60	3.62	240	10.87
65	2.94	305	13.81
93	4.21	398	18.03
96	4.35	494	22.37
137	6.20	631	28.58
173	7.84	804	36.41
151	6.84	955	43.25
158	7.16	1113	50.41
182	8.24	1295	58.65
163	7.38	1458	66.03
138	6.25	1596	72.28
124	5.62	1720	77.90
114	5.16	1834	83.06
86	3.89	1920	86.96
67	3.03	1987	89.99
60	2.72	2047	92.71
45	2.04	2092	94.75
37	1.68	2129	96.42
32	1.45	2161	97.87
23	1.04	2184	98.91
4	.18	2188	99.09
2	.09	2190	99.18
8	.36	2198	99.55
2	.09	2200	99.64
4	.18	2204	99.82
1	.05	2205	99.86
1	.05	2206	99.91
1	.05	2207	99.95
1	.05	2208	100.00

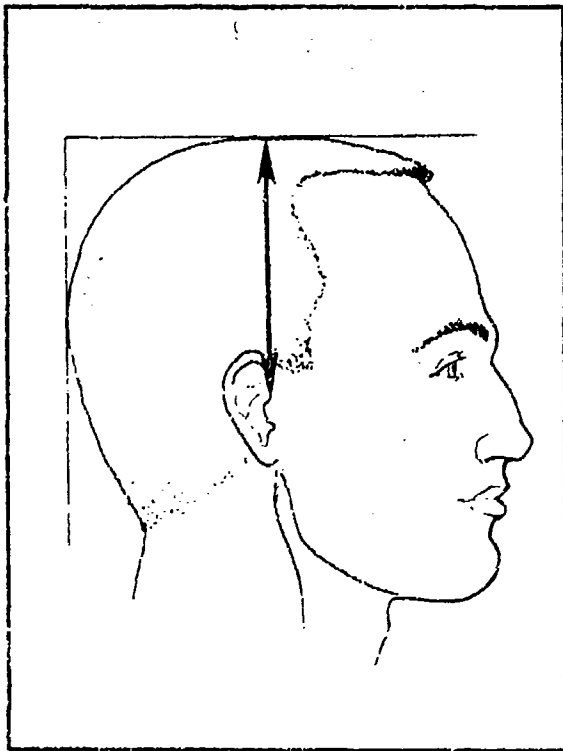
CENTIMETERS
7.95 - 8.05
8.05 - 8.15
8.15 - 8.25
8.25 - 8.35
8.35 - 8.45
8.45 - 8.55
8.55 - 8.65
8.65 - 8.75
8.75 - 8.85
8.85 - 8.95
8.95 - 9.05
9.05 - 9.15
9.15 - 9.25
9.25 - 9.35
9.35 - 9.45
9.45 - 9.55
9.55 - 9.65
9.65 - 9.75
9.75 - 9.85
9.85 - 9.95
9.95 - 10.05
10.05 - 10.15
10.15 - 10.25
10.25 - 10.35
10.35 - 10.45
10.45 - 10.55
10.55 - 10.65
10.65 - 10.75
10.75 - 10.85
10.85 - 10.95
10.95 - 11.05
11.05 - 11.15
11.15 - 11.25
11.25 - 11.35
11.35 - 11.45
11.45 - 11.55
11.55 - 11.65
11.65 - 11.75
11.75 - 11.85
11.85 - 11.95
11.95 - 12.05

### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
1	.06	2	.11
3	.17	5	.28
5	.20	10	.56
3	.17	13	.73
4	.23	17	.96
15	.85	32	1.80
17	.96	49	2.76
17	.96	66	3.72
25	1.41	91	5.13
30	1.69	121	6.82
49	2.76	170	9.58
54	3.04	224	12.63
77	4.34	301	16.97
85	4.79	386	21.76
102	5.75	488	27.51
111	6.26	599	33.77
114	.43	713	40.19
125	.05	838	47.24
137	7.72	975	54.96
118	6.65	1093	61.61
107	6.03	1200	67.64
92	5.19	1292	72.83
97	5.47	1389	78.30
83	4.62	1472	82.98
68	3.83	1540	86.81
58	3.27	1598	90.08
46	2.59	1644	92.67
38	2.14	1682	94.81
26	1.47	1708	96.28
22	1.24	1730	97.52
16	.90	1746	98.42
10	.56	1756	98.99
6	.34	1762	99.32
2	.11	1764	99.44
5	.28	1769	99.72
2	.11	1771	99.83
1	.06	1772	99.89
6	.00	1772	99.89
1	.06	1773	99.94
1	.06	1774	100.00

## (H44) TRAGION-TOP OF HEAD

The vertical distance between the tragion landmark on the cartilaginous flap in front of the earhole and the horizontal plane tangent to the top of the head is measured.



### THE PERCENTILES

FEMALES			MALES	
CM	INCHES		CM	INCHES
10.99	4.33	1ST	11.75	4.63
11.17	4.40	2ND	11.93	4.70
11.27	4.44	3RD	12.04	4.74
11.42	4.50	5TH	12.18	4.79
11.65	4.58	10TH	12.39	4.88
11.79	4.64	15TH	12.52	4.93
11.90	4.69	20TH	12.63	4.97
12.00	4.72	25TH	12.72	5.01
12.08	4.76	30TH	12.81	5.04
12.16	4.79	35TH	12.88	5.07
12.23	4.81	40TH	12.95	5.10
12.30	4.84	45TH	13.02	5.13
12.36	4.87	50TH	13.09	5.15
12.43	4.89	55TH	13.16	5.18
12.49	4.92	60TH	13.23	5.21
12.56	4.94	65TH	13.31	5.24
12.63	4.97	70TH	13.38	5.27
12.71	5.00	75TH	13.47	5.30
12.79	5.04	80TH	13.56	5.34
12.90	5.08	85TH	13.68	5.38
13.03	5.13	90TH	13.82	5.44
13.25	5.22	95TH	14.04	5.53
13.40	5.28	97TH	14.18	5.58
13.53	5.33	98TH	14.29	5.62
13.74	5.41	99TH	14.46	5.69

# TRAGION-TOP OF HEAD

## FEMALES

CM		INCHES
12.35	MEAN VALUE	4.86
.00	SE (MEAN)	.00
.55	STD DEVIATION	.22
.00	SE (STD DEV)	.00
10.63	MINIMUM	4.18
14.51	MAXIMUM	5.71

SYMMETRY---VETA I = .05  
 KURTOSIS---VETA II = 3.38  
 COEF. OF VARIATION = 4.5%  
 NUMBER OF SUBJECTS = 2208

## MALES

CM		INCHES
13.10	MEAN VALUE	5.16
.00	SE (MEAN)	.00
.57	STD DEVIATION	.22
.00	SE (STD DEV)	.00
11.17	MINIMUM	4.40
15.10	MAXIMUM	5.95

SYMMETRY---VETA I = .03  
 KURTOSIS---VETA II = 3.19  
 COEF. OF VARIATION = 4.3%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
1	.05	1	.05
1	.05	2	.09
6	.27	8	.36
10	.45	18	.82
9	.41	27	1.22
15	.68	42	1.90
18	.82	60	2.72
18	.82	78	3.53
36	1.63	114	5.16
38	1.72	152	6.88
68	3.08	220	9.96
74	3.35	294	13.32
93	4.21	387	17.53
115	5.21	502	22.74
129	5.84	631	28.58
148	6.70	779	35.28
154	6.97	933	42.26
147	6.66	1080	48.91
171	7.74	1251	56.66
172	7.79	1423	64.45
143	6.48	1566	70.92
129	5.84	1695	76.77
118	5.34	1813	82.11
110	4.98	1923	87.09
86	3.89	2009	90.99
59	2.67	2068	93.66
38	1.72	2106	95.38
26	1.18	2132	96.56
19	.86	2151	97.42
14	.63	2165	98.05
12	.54	2177	98.60
11	.50	2188	99.09
6	.27	2194	99.37
2	.09	2196	99.46
6	.27	2202	99.73
1	.05	2203	99.77
1	.05	2204	99.82
2	.09	2206	99.91
0	.00	2206	99.91
2	.09	2208	100.00

### CENTIMETERS

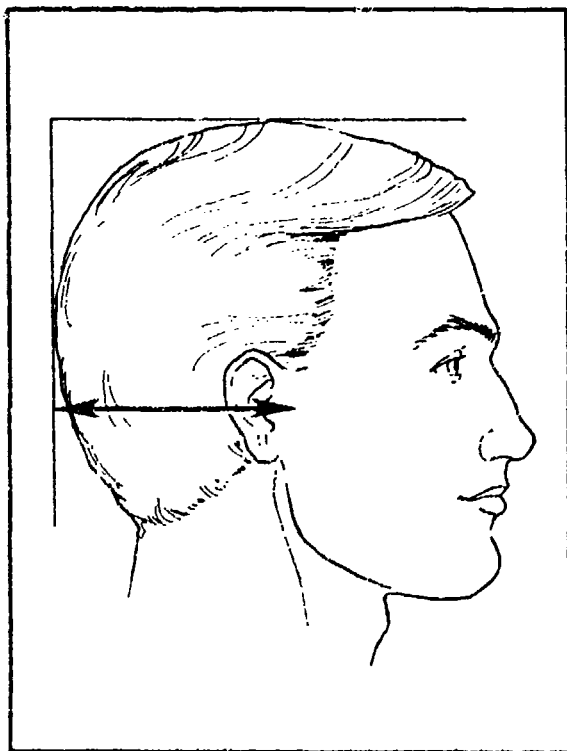
10.55 - 10.65
10.65 - 10.75
10.75 - 10.85
10.85 - 10.95
10.95 - 11.05
11.05 - 11.15
11.15 - 11.25
11.25 - 11.35
11.35 - 11.45
11.45 - 11.55
11.55 - 11.65
11.65 - 11.75
11.75 - 11.85
11.85 - 11.95
11.95 - 12.05
12.05 - 12.15
12.15 - 12.25
12.25 - 12.35
12.35 - 12.45
12.45 - 12.55
12.55 - 12.65
12.65 - 12.75
12.75 - 12.85
12.85 - 12.95
12.95 - 13.05
13.05 - 13.15
13.15 - 13.25
13.25 - 13.35
13.35 - 13.45
13.45 - 13.55
13.55 - 13.65
13.65 - 13.75
13.75 - 13.85
13.85 - 13.95
13.95 - 14.05
14.05 - 14.15
14.15 - 14.25
14.25 - 14.35
14.35 - 14.45
14.45 - 14.55
14.55 - 14.65
14.65 - 14.75
14.75 - 14.85
14.85 - 14.95
14.95 - 15.05
15.05 - 15.15

### MALES

F	FPct	CumF	CumFPct
2	.11	2	.11
2	.11	4	.23
3	.17	7	.39
3	.17	10	.56
3	.17	13	.73
4	.23	17	.96
9	.51	26	1.47
7	.39	33	1.86
17	.96	50	2.82
30	1.69	80	4.51
30	1.69	110	6.20
59	3.33	169	9.53
57	3.21	226	12.74
70	3.95	296	16.69
83	4.68	379	21.36
90	5.07	469	26.44
93	5.24	562	31.68
134	7.55	696	39.23
135	7.61	831	46.84
133	7.50	964	54.34
115	6.48	1079	60.82
131	7.38	1210	68.21
113	6.37	1323	74.58
87	4.90	1410	79.48
72	4.06	1482	83.54
62	3.49	1544	87.03
63	3.55	1607	90.59
52	2.93	1659	93.52
33	1.86	1692	95.38
28	1.58	1720	96.96
19	1.07	1739	98.03
5	.28	1744	98.31
10	.56	1754	98.87
6	.34	1760	99.21
6	.34	1766	99.55
3	.17	1769	99.72
1	.06	1770	99.77
2	.11	1772	99.89
0	.00	1772	99.89
2	.11	1774	100.00

## (H45) ZYGION-BACK OF HEAD

The horizontal distance between the zygion landmark on the zygomatic arch, or upper cheekbone, and the vertical plane tangent to the back of the head is measured.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
11.16	4.39	1ST	11.80	4.65	
11.34	4.46	2ND	11.98	4.72	
11.46	4.51	3RD	12.09	4.76	
11.62	4.58	5TH	12.24	4.82	
11.88	4.68	10TH	12.47	4.91	
12.06	4.75	15TH	12.62	4.97	
12.20	4.80	20TH	12.74	5.02	
12.33	4.85	25TH	12.85	5.06	
12.44	4.90	30TH	12.94	5.09	
12.54	4.94	35TH	13.02	5.13	
12.64	4.98	40TH	13.10	5.16	
12.74	5.01	45TH	13.18	5.19	
12.83	5.05	50TH	13.26	5.22	
12.93	5.09	55TH	13.33	5.25	
13.03	5.13	60TH	13.41	5.28	
13.13	5.17	65TH	13.49	5.31	
13.23	5.21	70TH	13.57	5.34	
13.35	5.26	75TH	13.67	5.38	
13.48	5.31	80TH	13.77	5.42	
13.63	5.37	85TH	13.89	5.47	
13.82	5.44	90TH	14.05	5.53	
14.11	5.56	95TH	14.29	5.63	
14.30	5.63	97TH	14.46	5.69	
14.45	5.69	98TH	14.59	5.74	
14.68	5.78	99TH	14.81	5.83	

# ZYGION-BACK OF HEAD

## FEMALES

<u>CM</u>		<u>INCHES</u>
12.85	MEAN VALUE	5.06
.02	SE(MEAN)	.00
.76	STD DEVIATION	.30
.00	SE(STD DEV)	.00
10.43	MINIMUM	4.11
16.03	MAXIMUM	6.31

SYMMETRY---VETA I = .17  
 KURTOSIS---VETA II = 3.21  
 COEF. OF VARIATION = 5.9%  
 NUMBER OF SUBJECTS = 2208

## MALES

<u>CM</u>		<u>INCHES</u>
13.26	MEAN VALUE	5.22
.00	SE(MEAN)	.00
.63	STD DEVIATION	.25
.00	SE(STD DEV)	.00
11.02	MINIMUM	4.34
15.68	MAXIMUM	6.17

SYMMETRY---VETA I = .07  
 KURTOSIS---VETA II = 3.25  
 COEF. OF VARIATION = 4.7%  
 NUMBER OF SUBJECTS = 1774

## FREQUENCY TABLE

### FEMALES

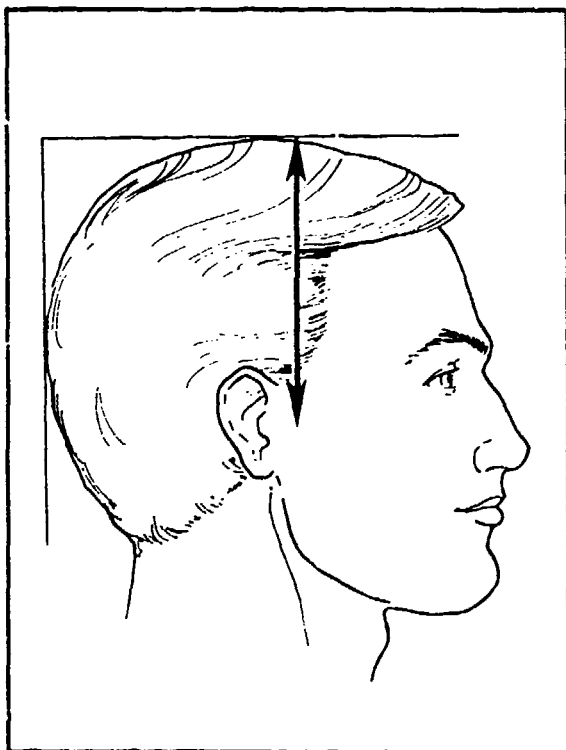
<u>F</u>	<u>FPct</u>	<u>CumF</u>	<u>CumFPct</u>	<u>CENTIMETERS</u>
2	.09	2	.09	10.35 - 10.55
2	.09	4	.18	10.55 - 10.75
3	.14	7	.32	10.75 - 10.95
16	.72	23	1.04	10.95 - 11.15
22	1.00	45	2.04	11.15 - 11.35
42	1.90	87	3.94	11.35 - 11.55
81	3.67	168	7.61	11.55 - 11.75
83	3.76	251	11.37	11.75 - 11.95
133	6.02	384	17.39	11.95 - 12.15
178	8.06	562	25.45	12.15 - 12.35
214	9.69	776	35.14	12.35 - 12.55
230	10.42	1006	45.55	12.55 - 12.75
227	10.28	1233	55.84	12.75 - 12.95
243	11.01	1476	66.85	12.95 - 13.15
185	8.38	1661	75.23	13.15 - 13.35
173	7.84	1834	83.06	13.35 - 13.55
120	5.43	1954	88.50	13.55 - 13.75
99	4.48	2053	92.98	13.75 - 13.95
48	2.17	2101	95.15	13.95 - 14.15
47	2.13	2148	97.28	14.15 - 14.35
27	1.22	2175	98.51	14.35 - 14.55
16	.72	2191	99.23	14.55 - 14.75
6	.27	2197	99.50	14.75 - 14.95
4	.18	2201	99.68	14.95 - 15.15
1	.05	2202	99.73	15.15 - 15.35
3	.14	2205	99.86	15.35 - 15.55
2	.09	2207	99.95	15.55 - 15.75
0	.00	2207	99.95	15.75 - 15.95
1	.05	2208	100.00	15.95 - 16.15

### MALES

<u>F</u>	<u>FPct</u>	<u>CumF</u>	<u>CumFPct</u>
2	.11	2	.11
0	.00	2	.11
5	.28	7	.39
7	.39	14	.79
20	1.13	34	1.92
28	1.58	62	3.49
56	3.16	118	6.65
106	5.98	224	12.63
137	7.72	361	20.35
196	11.05	557	31.40
201	11.33	758	42.73
239	13.47	997	56.20
218	12.29	1215	68.49
194	10.94	1409	79.43
126	7.10	1535	86.53
106	5.98	1641	92.50
66	3.72	1707	96.22
30	1.69	1737	97.91
13	.73	1750	98.65
15	.85	1765	99.49
5	.28	1770	99.77
2	.11	1772	99.89
0	.00	1772	99.89
2	.11	1774	100.00

## (H46) ZYGION-TOP OF HEAD

The vertical distance between the zygion landmark on the zygomatic arch, or upper cheekbone, and the horizontal plane tangent to the top of the head is measured.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
11.40	4.49	1ST	11.80	4.65	
11.57	4.55	2ND	11.97	4.71	
11.66	4.59	3RD	12.07	4.75	
11.79	4.64	5TH	12.21	4.81	
11.98	4.72	10TH	12.41	4.89	
12.11	4.77	15TH	12.55	4.94	
12.20	4.80	20TH	12.65	4.98	
12.29	4.84	25TH	12.74	5.02	
12.36	4.87	30TH	12.83	5.05	
12.43	4.89	35TH	12.90	5.08	
12.49	4.92	40TH	12.97	5.11	
12.56	4.94	45TH	13.04	5.14	
12.62	4.97	50TH	13.11	5.16	
12.68	4.99	55TH	13.18	5.19	
12.75	5.02	60TH	13.25	5.22	
12.82	5.05	65TH	13.33	5.25	
12.89	5.07	70TH	13.41	5.28	
12.97	5.11	75TH	13.49	5.31	
13.06	5.14	80TH	13.59	5.35	
13.17	5.18	85TH	13.71	5.40	
13.31	5.24	90TH	13.86	5.46	
13.52	5.32	95TH	14.09	5.55	
13.67	5.38	97TH	14.25	5.61	
13.78	5.42	98TH	14.37	5.66	
13.95	5.49	99TH	14.57	5.74	

# ZYGION-TOP OF HEAD

## FEMALES

CM		INCHES
12.63	MEAN VALUE	4.97
.00	SE(MEAN)	.00
.53	STD DEVIATION	.21
.00	SE(STD DEV)	.00
10.88	MINIMUM	4.28
14.94	MAXIMUM	5.88

SYMMETRY---VETA I	=	.18
KURTOSIS---VETA II	=	3.40
COEF. OF VARIATION	=	4.2%
NUMBER OF SUBJECTS	=	2208

## MALES

CM		INCHES
13.12	MEAN VALUE	5.17
.00	SE(MEAN)	.00
.57	STD DEVIATION	.23
.00	SE(STD DEV)	.00
11.23	MINIMUM	4.42
15.12	MAXIMUM	5.95

SYMMETRY---VETA I	=	.11
KURTOSIS---VETA II	=	3.25
COEF. OF VARIATION	=	4.4%
NUMBER OF SUBJECTS	=	1774

## FREQUENCY TABLE

### FEMALES

F	FPct	CumF	CumFPct
1	.05	1	.05
1	.05	2	.09
3	.14	5	.23
5	.23	10	.45
10	.45	20	.91
6	.27	26	1.18
12	.54	38	1.72
16	.72	54	2.45
33	1.49	87	3.94
47	2.13	134	6.07
76	3.44	210	9.51
74	3.35	284	12.86
108	4.89	392	17.75
126	5.71	518	23.46
122	5.53	640	28.99
162	7.34	802	36.32
164	7.43	966	43.75
170	7.70	1136	51.45
175	7.93	1311	59.38
183	8.29	1494	67.66
149	6.75	1643	74.41
106	4.80	1749	79.21
111	5.03	1860	84.24
83	3.76	1943	88.00
76	3.44	2019	91.44
50	2.26	2069	93.70
43	1.95	2112	95.65
29	1.31	2141	96.97
20	.91	2161	97.87
15	.68	2176	98.55
9	.41	2185	98.96
6	.27	2191	99.23
6	.27	2197	99.50
3	.14	2200	99.64
1	.05	2201	99.68
3	.14	2204	99.82
2	.09	2206	99.91
1	.05	2207	99.95
0	.00	2207	99.95
0	.00	2207	99.95
1	.05	2208	100.00

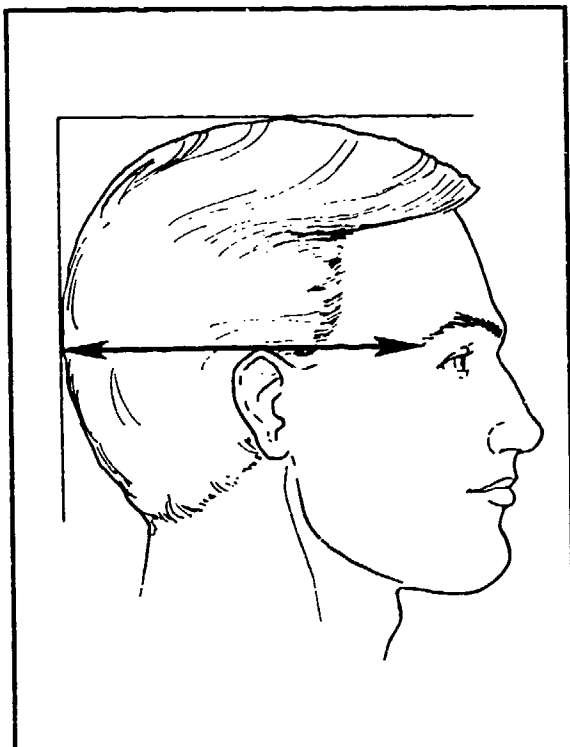
CENTIMETERS
10.85 - 10.95
10.95 - 11.05
11.05 - 11.15
11.15 - 11.25
11.25 - 11.35
11.35 - 11.45
11.45 - 11.55
11.55 - 11.65
11.65 - 11.75
11.75 - 11.85
11.85 - 11.95
11.95 - 12.05
12.05 - 12.15
12.15 - 12.25
12.25 - 12.35
12.35 - 12.45
12.45 - 12.55
12.55 - 12.65
12.65 - 12.75
12.75 - 12.85
12.85 - 12.95
12.95 - 13.05
13.05 - 13.15
13.15 - 13.25
13.25 - 13.35
13.35 - 13.45
13.45 - 13.55
13.55 - 13.65
13.65 - 13.75
13.75 - 13.85
13.85 - 13.95
13.95 - 14.05
14.05 - 14.15
14.15 - 14.25
14.25 - 14.35
14.35 - 14.45
14.45 - 14.55
14.55 - 14.65
14.65 - 14.75
14.75 - 14.85
14.85 - 14.95
14.95 - 15.05
15.05 - 15.15

### MALES

F	FPct	CumF	CumFPct
1	.06	1	.06
3	.17	4	.23
0	.00	4	.23
4	.23	8	.45
2	.11	10	.56
5	.28	15	.85
7	.39	22	1.24
9	.51	31	1.75
15	.85	46	2.59
19	1.07	65	3.66
26	1.47	91	5.13
48	2.71	139	7.84
67	3.78	206	11.61
58	3.27	264	14.88
95	5.36	359	20.24
107	6.03	466	26.27
94	5.30	560	31.57
126	7.10	686	38.67
119	6.71	805	45.38
124	6.99	929	52.37
119	6.71	1048	59.08
119	6.71	1167	65.78
111	6.26	1278	72.04
103	5.81	1381	77.85
84	4.74	1465	82.58
76	4.28	1541	86.87
53	2.99	1594	89.85
52	2.93	1646	92.78
40	2.25	1686	95.04
19	1.07	1705	96.11
16	.90	1721	97.01
10	.56	1731	97.58
13	.73	1744	98.31
10	.56	1754	98.87
8	.45	1762	99.32
4	.23	1766	99.55
2	.11	1768	99.66
2	.11	1770	99.77
3	.17	1773	99.94
1	.06	1774	100.00

## (H47) ZYGOFRONTALE-BACK OF HEAD

The horizontal distance between the zygofrontale landmark at the upper margin of the bony eye socket and the vertical plane tangent to the back of the head is measured.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
14.71	5.79	1ST	15.65	6.16	
14.90	5.86	2ND	15.80	6.22	
15.01	5.91	3RD	15.91	6.26	
15.16	5.97	5TH	16.06	6.32	
15.40	6.06	10TH	16.29	6.42	
15.55	6.12	15TH	16.46	6.48	
15.68	6.17	20TH	16.59	6.53	
15.79	6.22	25TH	16.70	6.58	
15.88	6.25	30TH	16.80	6.61	
15.97	6.29	35TH	16.89	6.65	
16.06	6.32	40TH	16.98	6.68	
16.14	6.35	45TH	17.06	6.72	
16.22	6.39	50TH	17.14	6.75	
16.30	6.42	55TH	17.22	6.78	
16.39	6.45	60TH	17.30	6.81	
16.47	6.48	65TH	17.38	6.84	
16.56	6.52	70TH	17.46	6.87	
16.66	6.56	75TH	17.55	6.91	
16.77	6.60	80TH	17.65	6.95	
16.89	6.65	85TH	17.77	6.99	
17.05	6.71	90TH	17.91	7.05	
17.27	6.80	95TH	18.14	7.14	
17.40	6.85	97TH	18.30	7.20	
17.50	6.89	98TH	18.42	7.25	
17.64	6.94	99TH	18.63	7.33	



# ZYGOFRONTALE-BACK OF HEAD

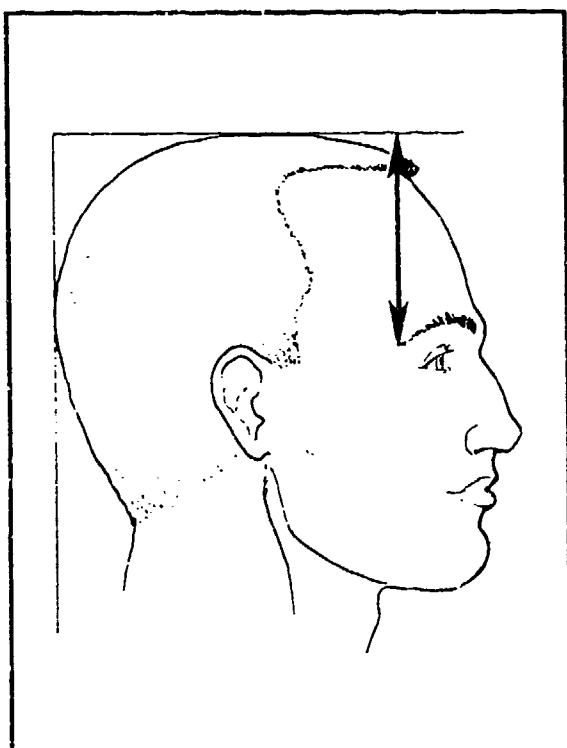
FEMALES			
CM		INCHES	
16.22	MEAN VALUE	5.38	
.00	SE(MEAN)	.00	
.64	STD DEVIATION	.25	
.00	SE(STD DEV)	.00	
13.46	MINIMUM	5.30	
18.45	MAXIMUM	7.26	
SYMMETRY---VETA I = -.10			
KURTOSIS---VETA II = 3.12			
COEF. OF VARIATION = 3.9%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
17.12	MEAN VALUE	6.74	
.02	SE(MEAN)	.00	
.64	STD DEVIATION	.25	
.00	SE(STD DEV)	.00	
14.76	MINIMUM	5.81	
19.35	MAXIMUM	7.62	
SYMMETRY---VETA I = .00			
KURTOSIS---VETA II = 3.14			
COEF. OF VARIATION = 3.7%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE											
FEMALES						MALES					
F	FPct	CumF	CumFPct	CENTIMETERS		F	FPct	CumF	CumFPct		
1	.05	1	.05	13.35	- 13.55	1	.06	1	.06		
0	.00	1	.05	13.55	- 13.75	0	.00	1	.06		
1	.05	2	.09	13.75	- 13.95	3	.17	4	.23		
2	.09	4	.18	13.95	- 14.15	6	.34	10	.56		
6	.27	10	.45	14.15	- 14.35	19	1.07	29	1.63		
3	.14	13	.59	14.35	- 14.55	31	1.75	60	3.38		
11	.50	24	1.09	14.55	- 14.75	58	3.27	118	6.65		
29	1.31	53	2.40	14.75	- 14.95	87	4.90	205	11.56		
48	2.17	101	4.57	14.95	- 15.15	123	6.93	328	18.49		
93	4.21	194	8.79	15.15	- 15.35	156	8.79	484	27.28		
126	5.71	320	14.49	15.35	- 15.55	207	11.67	691	38.95		
192	8.70	512	23.19	15.55	- 15.75	209	11.78	900	50.73		
223	10.10	735	33.29	15.75	- 15.95	227	12.80	1127	63.53		
267	12.09	1002	45.36	15.95	- 16.15	197	11.10	1324	74.63		
284	12.86	1286	58.24	16.15	- 16.35	167	9.41	1491	84.05		
251	11.37	1537	69.61	16.35	- 16.55	129	7.27	1620	91.32		
217	9.83	1754	79.44	16.55	- 16.75	69	3.89	1689	95.21		
174	7.88	1928	87.32	16.75	- 16.95	43	2.42	1732	97.63		
111	5.03	2039	92.35	16.95	- 17.15	19	1.07	1751	98.70		
86	3.89	2125	96.24	17.15	- 17.35	11	.62	1762	99.32		
52	2.36	2177	98.60	17.35	- 17.55	5	.28	1767	99.61		
20	.91	2197	99.50	17.55	- 17.75	1	.06	1768	99.66		
5	.23	2202	99.73	17.75	- 17.95	5	.28	1773	99.94		
5	.23	2207	99.95	17.95	- 18.15	1	.06	1774	100.00		
0	.00	2207	99.95	18.15	- 18.35						
1	.05	2208	100.00	18.35	- 18.55						
				18.55	- 18.75						
				18.75	- 18.95						
				18.95	- 19.15						
				19.15	- 19.35						
				19.35	- 19.55						

## (H48) ZYGOFRONTALE-TOP OF HEAD

The vertical distance between the zygofrontale landmark at the upper margin of the bony eye socket and the horizontal plane tangent to the top of the head is measured.



### THE PERCENTILES

FEMALES			MALES		
CM	INCHES		CM	INCHES	
8.35	3.29	1ST	9.15	3.60	
8.55	3.36	2ND	9.35	3.68	
8.67	3.41	3RD	9.47	3.73	
8.83	3.48	5TH	9.62	3.79	
9.07	3.57	10TH	9.85	3.88	
9.22	3.63	15TH	10.01	3.94	
9.34	3.68	20TH	10.12	3.99	
9.44	3.72	25TH	10.23	4.03	
9.53	3.75	30TH	10.32	4.06	
9.61	3.78	35TH	10.40	4.10	
9.69	3.81	40TH	10.48	4.13	
9.76	3.84	45TH	10.56	4.16	
9.84	3.87	50TH	10.64	4.19	
9.91	3.90	55TH	10.71	4.22	
9.99	3.93	60TH	10.79	4.25	
10.06	3.96	65TH	10.87	4.28	
10.14	3.99	70TH	10.96	4.31	
10.23	4.03	75TH	11.05	4.35	
10.34	4.07	80TH	11.15	4.39	
10.46	4.12	85TH	11.27	4.44	
10.61	4.18	90TH	11.43	4.50	
10.85	4.27	95TH	11.66	4.59	
11.01	4.33	97TH	11.80	4.65	
11.13	4.38	98TH	11.91	4.69	
11.33	4.46	99TH	12.08	4.76	

# ZYGOFRONTALE-TOP OF HEAD

FEMALES			
CM		INCHES	
9.83	MEAN VALUE	3.87	
.00	SE(MEAN)	.00	
.61	STD DEVIATION	.24	
.00	SE(STD DEV)	.00	
7.69	MINIMUM	3.03	
12.37	MAXIMUM	4.87	
SYMMETRY---VETA I = .02			
KURTOSIS---VETA II = 3.24			
COEF. OF VARIATION = 6.2%			
NUMBER OF SUBJECTS = 2208			

MALES			
CM		INCHES	
10.63	MEAN VALUE	4.19	
.00	SE(MEAN)	.00	
.62	STD DEVIATION	.24	
.00	SE(STD DEV)	.00	
8.53	MINIMUM	3.36	
12.90	MAXIMUM	5.08	
SYMMETRY---VETA I = -.02			
KURTOSIS---VETA II = 3.15			
COEF. OF VARIATION = 5.8%			
NUMBER OF SUBJECTS = 1774			

FREQUENCY TABLE							
FEMALES				MALES			
F	FPct	CumF	CumFPct	CENTIMETERS	F	FPct	CumF
1	.05	1	.05	7.65 - 7.75	1	.06	1
0	.00	1	.05	7.75 - 7.85	1	.06	2
0	.00	1	.05	7.85 - 7.95	3	.17	5
3	.14	4	.18	7.95 - 8.05	1	.06	6
3	.14	7	.32	8.05 - 8.15	4	.23	10
7	.32	14	.63	8.15 - 8.25	2	.11	12
10	.45	24	1.09	8.25 - 8.35	8	.45	20
7	.32	31	1.40	8.35 - 8.45	6	.34	26
14	.63	45	2.04	8.45 - 8.55	8	.45	34
17	.77	62	2.81	8.55 - 8.65	16	.90	50
18	.82	80	3.62	8.65 - 8.75	15	.85	65
37	1.68	117	5.30	8.75 - 8.85	24	1.35	89
33	1.49	150	6.79	8.85 - 8.95	40	2.25	129
62	2.81	212	9.60	8.95 - 9.05	52	2.93	181
67	3.03	279	12.64	9.05 - 9.15	67	3.78	248
79	3.58	358	16.21	9.15 - 9.25	56	3.16	304
117	5.30	475	21.51	9.25 - 9.35	74	4.17	378
105	4.76	580	26.27	9.35 - 9.45	90	5.07	468
126	5.71	706	31.97	9.45 - 9.55	89	5.02	557
109	4.94	815	36.91	9.55 - 9.65	115	6.48	672
153	6.93	968	43.84	9.65 - 9.75	120	6.76	792
151	6.84	1119	50.68	9.75 - 9.85	113	6.37	905
140	6.34	1259	57.02	9.85 - 9.95	113	6.37	1018
148	6.70	1407	63.72	9.95 - 10.05	110	6.20	1128
140	6.34	1547	70.06	10.05 - 10.15	106	5.98	1234
137	6.20	1684	76.27	10.15 - 10.25	86	4.85	1320
106	4.80	1790	81.07	10.25 - 10.35	94	5.30	1414
92	4.17	1882	85.24	10.35 - 10.45	82	4.62	1496
78	3.53	1960	88.77	10.45 - 10.55	62	3.49	1558
53	2.40	2013	91.17	10.55 - 10.65	57	3.21	1615
45	2.04	2058	93.21	10.65 - 10.75	43	2.42	1658
40	1.81	2098	95.02	10.75 - 10.85	29	1.63	1687
33	1.49	2131	96.51	10.85 - 10.95	26	1.47	1713
19	.86	2150	97.37	10.95 - 11.05	13	.73	1726
16	.72	2166	98.10	11.05 - 11.15	20	1.13	1746
11	.50	2177	98.60	11.15 - 11.25	8	.45	1754
12	.54	2189	99.14	11.25 - 11.35	9	.51	1763
8	.36	2197	99.50	11.35 - 11.45	3	.17	1766
4	.18	2201	99.68	11.45 - 11.55	2	.11	1768
1	.05	2202	99.73	11.55 - 11.65	2	.11	1770
3	.14	2205	99.86	11.65 - 11.75	0	.00	1770
1	.05	2206	99.91	11.75 - 11.85	1	.06	1771
1	.05	2207	99.95	11.85 - 11.95	2	.11	1773
0	.00	2207	99.95	11.95 - 12.05	0	.00	1773
0	.00	2207	99.95	12.05 - 12.15	1	.06	1774
0	.00	2207	99.95	12.15 - 12.25			
0	.00	2207	99.95	12.25 - 12.35			
1	.05	2208	100.00	12.35 - 12.45			
				12.45 - 12.55			
				12.55 - 12.65			
				12.65 - 12.75			
				12.75 - 12.85			
				12.85 - 12.95			

## CHAPTER VII

### OBSERVER ERROR

#### INTRODUCTION

Because anthropometric data are used in the design of workspaces, uniforms, and critical-fit protective gear, excessive error in the data can result in badly designed workspaces, poorly fitting uniforms and potentially unsafe protective gear. Further, several recent studies have shown the effects of observer error on the interpretation of population comparisons (Jamison & Zegura, 1974;<sup>14</sup> Utermohle & Zegura, 1982;<sup>15</sup> Utermohle et al., 1983<sup>16</sup>). For the Army's 1987-1988 anthropometric survey, considerable effort was made to reduce the amount of interobserver error that entered the final data set (see Chapter II and Churchill et al., 1988<sup>7</sup>). Nevertheless, observer error is a fact of life in almost any scientific endeavor. Because error cannot be eliminated entirely, the most responsible approach is to measure the interobserver error (hereafter, observer error) so that users of the data will be able to judge for themselves its effects for their particular applications.

Error analysis of anthropometric data is usually done after the data collection has been completed. While this gives the user of the data the information necessary to judge the effects of error on his/her use of the data, it does not allow observer error information to be used during data collection to improve the quality of data collection. The approach used in the Army's 1987-1988 anthropometric survey was to establish an allowable observer error for each dimension. Subsequently, one subject was remeasured at each station for each half-day throughout the course of the survey. With a weekly analysis, measurers were alerted if their mean errors during the week exceeded the allowable errors. Thus the observer error data were used as a constant feedback to the team to maintain the highest quality data collection possible.

This chapter has two main sections. The first presents the allowable observer errors and the procedures used to establish them. The second presents the summary results of the daily observer error data collected throughout the course of the survey.

#### ALLOWABLE OBSERVER ERROR

The allowable errors were established for three purposes.

They were first used during the initial training period as an indicator that measurers had successfully learned their tasks. Team members made practice measurements on a group of subjects to learn their assigned dimensions. After the initial practice runs, data were collected and retained for analysis. Intraobserver and interobserver error results were calculated regularly to assess the ability of each measurer to repeat measurements within fixed limitations, and the ability of each pair of measurers to achieve interobserver consistency. The performance of measurers in training was rated against standards established by experienced measurers.

The second use of the acceptable observer error levels was to "recalibrate" the team at the beginning of each new survey location. Because the team traveled by car to each new location, there was often a period of several days between measuring sessions. In order to ensure

consistency from one location to the next, and in order to minimize measurer "drift" during the course of the survey, error trials were conducted on the first day in each new location. A group of subjects was measured and then remeasured and observer error checked.

The third use of the allowable observer error was as a standard for daily error checks. Twice a day, at each station, a subject was remeasured to give error data on actual subjects collected during the course of the survey. These data were examined daily and analyzed weekly. If a measuring pair exceeded the allowable observer error, the cause of the drift was determined and corrective action taken. Thus, the allowable error values in a very real sense established the minimum reliability for the data collected in the survey.

There were three sources of information used in the determination of the levels of acceptable observer error. These were: the research literature; examination of test/retest values from surveys in the Harry G. Armstrong Aerospace Medical Research Laboratory Anthropometric Data Bank; and analysis of the results of an observer error test conducted specifically for this survey, using four expert anthropometrists and 10 subjects.

#### Observer Error in the Anthropometric Literature

There are a number of different analytical methods and approaches to error analysis. Our literature review of anthropometric error data has shown: analysis of variance (Bennett and Osborne, 1986;<sup>17</sup> Jamison and Zegura, 1974;<sup>14</sup> Utermohle and Zegura, 1982<sup>15</sup>), correlation coefficients (Branson et al., 1982;<sup>18</sup> Jamison and Zegura, 1974;<sup>14</sup> Kemper and Pieters, 1974<sup>19</sup>), mean differences (Branson et al., 1982<sup>18</sup>), technical error measurement (Branson et al., 1982;<sup>18</sup> Cameron, 1984;<sup>20</sup> Johnston and Mack, 1985;<sup>21</sup> Utermohle and Zegura, 1982<sup>15</sup>), paired T-tests (Albrecht, 1983;<sup>22</sup> Utermohle and Zegura, 1982<sup>15</sup>), eleven separate univariate measures (Utermohle et al., 1983)<sup>16</sup> and various multivariate measures (Jamison and Zegura, 1974;<sup>14</sup> Page, 1976;<sup>23</sup> Utermohle et al., 1983<sup>16</sup>). Utermohle et al. (1983)<sup>16</sup> have observed: "There is no consensus concerning which statistical procedures are optimal or even important for the analysis of measurement error in physical anthropology." Our own literature review suggests that this perspective is correct.

Analysis of variance is a generally useful technique, which has often been applied to error data. Depending upon how it is applied, it can show how much of the measurement error is due to interobserver differences, how much to intraobserver differences and, where applicable, how much is due to the use of varying measurement methods or instruments. As Bennett and Osborne (1986)<sup>17</sup> emphasize, analyses of variance are often used as a measure of differences between populations. Thus, when they can demonstrate statistically significant differences between groups as defined by measurer (interobserver error), then the conclusions of a large number of studies showing anthropometric differences between populations should be questioned. This point is also made about multivariate techniques by Jamison and Zegura (1974),<sup>14</sup> and about principal components by Page (1976).<sup>23</sup>

While the partitioning of error variance into interobserver and intraobserver components can be useful for population comparisons, and is of interest in its own right, it nevertheless has little to offer for the setting of permissible error levels in advance of data collection. Indeed in the present case, because the sample size is large, an analysis that relies on statistical significance must be regarded with extreme caution. What is needed instead is a technique that examines observer differences in terms of the units of measurement.

A second analytical approach to error data is exemplified by Kemper and Pieters (1974)<sup>19</sup>. In that study investigators compared nine measurements obtained on the same subjects by measurers at two different research institutes in The Netherlands. (An important distinction here is that the two teams were trained on the basis of the same written document, but were not trained by the same persons or trained with each other.) The authors calculated the mean differences between measurements, including the sign (positive or negative) of the differences. They included the sign because they were interested in checking for systematic differences between the two organizations. Additionally, they calculated correlation coefficients between the two measurements. These ranged from 0.872 for Biacromial Diameter to 0.996 for Stature. A third value calculated in their study was a correlation coefficient between the difference (between the two measurements) and the mean of the two measurements. This last value is a measure of whether the difference increases with an increase in the absolute size of the measurement. Most were not statistically different from zero, and all but three were less than 0.2. Biliocristale Diameter (0.274) and Thigh Circumference (0.357) were statistically significant from zero at the 5% level. Here again, however, as in analysis of variance, these values are useful in analyzing data after they have been collected, but are not directly applicable to setting error levels in advance of data collection.

One approach, which does express error in terms of the unit of measurement, is the technical error of measurement. Its formula is:

$$\sqrt{\frac{\sum d_{1,2}^2}{2N}}$$

where  $d_{1,2}$  are the differences between the first and second measurement. As can be seen from the formula, the technical error is basically a way of summarizing differences between two measurements over a series of subjects. Cameron (1984)<sup>20</sup> describes technical error and suggests that one approach to establishing acceptable error before data collection would be to use the calculated technical error from a previous study. Table 38 is taken from Cameron's (1984) Table 5.1<sup>20</sup> and shows interobserver technical error of measurement. The dimensions shown in Table 38 were also measured in ANSUR.

TABLE 38. Interobserver Technical Error of Measurement.  
[After Cameron (1984) Table 5.1<sup>20</sup>]

<u>Dimension</u>	<u>Technical Error of Measurement</u>
Biacromial Breadth	0.915
Biliac Breadth	1.545
Calf Circumference	0.340
Chest Circumference	1.816
Height	0.681
Hip Circumference	1.375
Sitting Height	0.705
Waist Circumference	1.561
Weight	1.228

No units are given in the published table, but they are assumed to be in centimeters and kilograms. Note that the larger circumferences are subject to greater error than the smaller circumference. Heights and breadths have roughly equivalent errors, but have smaller errors than the large circumferences.

Cameron (1984)<sup>20</sup> recommends the establishment of pre-set limits on acceptable error before data collection begins, yet few studies have followed this advice. One organization which does have limits for observer error in anthropometric data collection is the Fels Research Institute located in Yellow Springs, Ohio. Chumlea and co-workers (1984)<sup>24</sup> explain the procedures used in applying those pre-set limits in a context where every subject is measured at least twice (once each by two observers) and possibly four times (twice each by two observers). Their limits range from 0.2 cm for Arm Circumference to 1.0 cm for Stature and 0.1 kg for Weight (Chumlea et al., 1984).<sup>24</sup> On a series of six dimensions, measured on a group of individuals between the ages of 18 and 40 years, the authors report the number of times that the first pair of measurements exceeded an established pre-set limit. Table 39 is adapted from Chumlea et al.,'s (1984) Table 1.<sup>24</sup>

TABLE 39. Interobserver Differences Outside Preset Limits.  
[After Chumlea et al. (1984) Table 1.<sup>24</sup>]

<u>Dimension</u>	<u>Limit</u>	<u>Number of Differences Outside Limits</u>	<u>% of Dif- ferences (n=44) Outside Limits</u>
Abdominal Circ	1.0 cm	19	43
Arm Circ	0.2 cm	7	16
Biacromial Breadth	1.0 cm	3	7
Calf Circ	0.2 cm	6	14
Chest Circumference	1.0 cm	10	23
Bicristal Breadth	1.0 cm	6	14

Data from 44 subjects, each measured twice, were examined. The column of the table labelled "Number of Differences Outside Limits" indicates the number of times that a measurer pair exceeded the pre-set limit on the first attempt. The final column of the table indicates what percentage of the total was outside the limit. An examination of these figures suggests that some of the limits may not have been realistic. Thus the limit on Biacromial Breadth, for example, is rarely exceeded, and may be too high for that dimension. Nevertheless, the Fels group is a pioneer in the establishment of error limits before data collection, and the care taken in their data collection is shown in the results of interobserver error analyses, as can be seen in Table 40.

Table 40, also adapted from Chumlea et al. (1984),<sup>24</sup> shows the technical error of measurement as well as the mean of the absolute differences between measurements for a group of subjects aged 20 to 50 years. As in the case with the Cameron (1984)<sup>20</sup> technical error of measurement data reported in Table 38, different classes of dimensions have different error values. The largest errors are found in the large circumferences, and the breadths have larger errors than the small circumferences.

TABLE 40. Technical Errors of Measurement and Mean Absolute Interobserver Error for Men and Women Aged 20 to 50 Years. [After Chumlea et al. (1984) Table 2.<sup>24</sup>]

<u>Dimension</u>	<u>Mean Error</u>	<u>Technical Error of Measurement</u>
Abdominal Circ (cm)	0.49	0.41
Arm Circ (cm)	0.09	0.08
Biacromial Br (cm)	0.32	0.29
Bicristal Br (cm)	0.41	0.38
Calf Circ (cm)	0.09	0.08
Chest Circ (cm)	0.45	0.40
Sitting Height (cm)	0.19	0.19
Stature (cm)	0.14	0.15
Weight (kg)	0.02	0.03

Table 40 also shows an interesting feature of the technical error of measurement as opposed to the mean of absolute value differences between the first and second measurements. While the mean difference is sometimes larger and sometimes smaller than the technical error, the magnitude of both is always roughly the same.

The brief examination of the literature on the analysis of error data in anthropometric studies has shown that: there exists no consensus among researchers on an optimum method; there is considerable variability in the actual amount of error present in various studies; and setting levels of acceptable error before data collection is rare indeed. In terms of the task at hand, namely developing pre-set error levels, two approaches to data analysis had merit. These were the calculation of mean values of differences between measurements when the sign had been removed, and the calculation of the technical error of measurement. As both measures yielded similar values the simpler mean of absolute differences was selected for use in analyzing measurement error for establishing allowable errors.

#### Observer Error in Data Bank Surveys

Error data have not been frequently collected during the course of major anthropometric surveys, which make up the majority of surveys in the Harry G. Armstrong Aerospace Medical Research Laboratory's Anthropometric Data Bank. There are four surveys, however, which have some repeated measure data. These include the Royal Air Force (RAF) 2000 (Bolton et al., 1973),<sup>25</sup> the Australian Tri-Service survey (Hendy, 1979),<sup>26</sup> the 1965 survey of U.S. Air Force personnel (Anthropology Research Project, Inc., unpublished data),<sup>27</sup> and the 1985 survey of the Dutch military (Anthropology Research Project, Inc., unpublished data).<sup>28</sup> In the RAF 2000, 140 subjects were remeasured in an effort to assess interobserver error during data collection. In the 1965 U.S. survey, 42 men were measured in the morning and remeasured the same afternoon. The Dutch survey had an n of 1010, and every subject was measured twice, but the documentation accompanying the tape does not state whether the second measurement was taken by the same or a different investigator. Thus, the values may be for interobserver error, intraobserver error, or a combination of both. The Australian remeasure test contained 50 subjects and included both



interobserver and intraobserver data. An ideal comparison of the four data bank series is thwarted because the second measurements of the 1965 Air Force, the RAF 2000, and the Australian survey are no longer available. Further, the method used to analyze and report the data in the RAF report is unlike any other reported in the surveyed literature. Specifically, Bolton and co-workers report the maximum deviation of the second value from a value predicted, by regression, from the first. This value was expressed as a percent of the mean (Bolton et al., 1973).<sup>25</sup> Because this approach was so unusual, and was not described well enough for duplication on the other data sets, the repeatability in the four data sets was compared by ranking. Table 41 is taken from unpublished work supported by the U.S. Air Force (AF Contract F33615-85-C-0531).

TABLE 41. Rank Ordering of Dimensions by Repeatability  
Measures in Four Surveys from Most to Least  
Repeatable.

	<u>Dutch*</u>	<u>AF 1965*</u>	<u>RAF 2000**</u>	<u>Australian Tri-Service†</u>
Neck Circumference	1	11	8	7
Stature	2	1	1	1
Cervical Height	3	5	3	-
Head Circumference	4	3	4	8
Head Length	5	2	11	-
Head Breadth	6	12	13	9
Crotch Height	7	6	2	6
Hip Circumference	8	4	7	2
Bitracion Coronal Arc	9	13	5	-
Chest Circumference	10	10	10	3
Buttock-Knee Length	11	8	9	5
Thigh Circumference	12	7	5	-
Bideltoid Breadth	13	9	12	4
Elbow Rest Height	14	14	14	10

\* The measure of repeatability is the standard error of measurement expressed as a percentage of the mean.

\*\* The measure of repeatability is the maximum deviation of a second measurement from the predicted value of a regression equation. It is expressed as a percentage of the mean.

† The repeatability measure is a correlation coefficient. Some dimensions (-) were not measured.

A few features of the table deserve mention. First, the least repeatable measure, relative to the size of the dimension, is elbow rest height. This is true for all three surveys. Conversely, stature is highly repeatable in all surveys, and chest circumference appears in about the middle in all three. There are also a number of differences which the reader can easily discern. These differences likely reflect varying levels of difficulty in the particular measuring technique used.

## Observer Error Test

This error trial was designed specifically to develop pre-set limits for observer error in the 1987-1988 Army survey. It was not designed to answer general questions about observer error in anthropometry as a whole.

## Methods

The dimensions to be measured in the Army survey were measured 8 times each on 10 subjects. The eight measurement sessions were divided in the following way: four separate measurers each measured each subject twice. Because a single measurement session took between one and two hours, it was impossible to have all eight sessions take place in one day. Therefore, each subject was measured four times in one day by the four measurers, and four times a second day, again by all four measurers. On a given day, each subject was marked only once. The marks were refreshed after a lunch break, if necessary. A single marker marked all subjects. This research design was selected to match the design in the field when subjects would be repeat-measured on the same day, with the same set of landmarks. In addition, for any given landmark in the field, there would be only one marker (for each sex). In the present study, the four measurers were Dr. John T. McConville, Mr. Charles E. Clauser, both of Anthropology Research Project, Inc., Dr. Kenneth W. Kennedy of Universal Energy Systems, Inc., and Dr. W. Cameron Chumlea, of Wright State University School of Medicine. Dr. McConville was the marker. Dr. McConville and Mr. Clauser measured in the mornings, and Drs. Kennedy and Chumlea measured in the afternoons. Recorders were selected from the following ARP personnel: Dr. Bruce Bradtmiller, Dr. McConville, Mr. Clauser and Ms. Julie Heifner.

An assessment of marker error was not included in this study. Because of the research design, and the fact that the second trial was conducted on a second day with a second set of marks, any marker error would be included in the intraobserver measurement error. The interobserver error data are free from marker error. Since the interobserver error is the primary focus of this effort, the research design was chosen with that in mind.

After the data were collected they were entered into computer files and subjected to gross editing. The purpose of this was to eliminate large discrepancies, such as those which resulted from obvious misreadings of instruments. Some would argue that any data editing in an error study would be inappropriate. However, because the in-field data collection was computerized, and in-field editing routines would not allow the recording of grossly inaccurate values, this approach was deemed appropriate here. It should be emphasized, however, that only gross values were edited. Those where a clear transposition of digits had occurred, or where the instrument was misread by 100, 200 or 300 mm were changed to the appropriate value. Where a value was obviously a gross error, but where no clear substitute value was apparent, the data point was removed and declared missing.

After editing, the data were analyzed in the following way: For both pairs of measurers (morning and afternoon), the differences between measurers were calculated for each subject for each dimension. The mean of the absolute values of those differences was calculated for each pair of investigators, for each dimension. These procedures were carried out separately for each of the two trials.

## Results

Tables 42 through 51 show the observer error summary data for each dimension. The first four columns show the mean differences between each pair of investigators for each trial. All means are of absolute values. The final column on each table indicates the value, in millimeters or kilograms, which is the allowable observer error for the 1987-88 Army anthropometric survey.

In general, the recommended allowable error was the rounded maximum of the four means in the table. The rationale was that the four measurers are experts. Differences between them would be expected to be the minimum differences between individuals who are not so highly trained. Values indicated by asterisks on the tables are those where maximum values were not chosen; explanations are given in the text which follows. Values were not initially chosen for Bustpoint/Thelion-Bustpoint/Thelion Breadth, Strap Length, Neck-Bustpoint/Thelion Length and Interpupillary Breadth. Because the expert measurers were exclusively male, female subjects wore their choice of swimming suit tops or halters instead of bras. Marker pens were not used to mark bustpoint on the subjects' own garments, so the bustpoint landmark was ill-defined and often not a landmark at all. The pupillometer was not available for this study. Allowable observer error was selected for these dimensions on the basis of data collected from the field during the first few weeks of data collection.

It was noted in the discussion of error data from previous studies that the amount of error varies with the type or class of dimension. For that reason, the dimensions are grouped here into classes for discussion.

Table 42 shows the error data for the standing heights. Note that the allowable error for Stature is 11 mm. This is one millimeter greater than the allowable interobserver difference in the Fels study, but it was justified on the basis of individual values which are not reflected in the mean differences and on the basis of investigators' experiences with this dimension. Those dimensions which involve the breathing cycle have, in general, relatively high allowable errors. Examples of these are Chest Height and Wrist Height. Crotch Height is higher than some other dimensions of the same magnitude due to the apparently varying amounts of pressure used by the different investigators. It was thought that a measurer pair working closely together would be able to decrease this difference.

The allowable error for Iliocristale Height is lower than the maximum mean difference and lower than the mean of A.M. Trial 1. One of the investigators had a consistently difficult time differentiating among the four landmarks in the mid-torso region, and inclusion of his values was deemed to unnecessarily inflate the allowable error. The maximum mean difference excludes that investigator. The same method was used for Trochanterion Height, where the problem was the same.

The allowable errors for the sitting heights are shown in Table 43. Wrist Height, Sitting has the highest allowable error both in absolute terms and relative to the size of the dimension. This is due to difficulty in consistency of subject position as well as to variation in the breathing cycle. Allowable errors for all of the upper body sitting heights are of roughly the same magnitude. The lower body heights generally have lower allowable errors.

Table 44 shows the error data for body-segment lengths. The errors, in general, are lower for the dimensions with bony endpoints. Dimensions involving soft tissue have higher observer

TABLE 42. Standing Heights: Observer Error Test (in mm).

	Mean Difference A.M. <u>Trial 1</u>	Mean Difference A.M. <u>Trial 2</u>	Mean Difference P.M. <u>Trial 1</u>	Mean Difference P.M. <u>Trial 2</u>	Allowable Error
Acromial	3.8	6.6	6.5	6.7	7
Axilla	9.4	3.8	6.7	3.3	10*
Buttock	7.4	3.3	4.5	4.3	7
Calf	2.0	1.3	3.3	2.1	3
Cervicale	6.7	3.9	5.5	3.1	7
Chest	11.0	9.6	8.8	5.6	11
Crotch	6.3	6.3	5.0	6.8	10*
Gluteal Furrow	3.9	5.8	3.5	4.9	6
Iliocristale	12.3	3.5	3.7	2.8	5*
Knee-Midpatella	5.6	3.0	5.7	3.3	6
Lat Fem Epicondyle	2.2	1.3	3.1	1.3	3
Lateral Malleolus	2.3	2.9	2.0	2.6	3
Neck, Lateral	7.0	6.2	4.6	3.3	7
Stature	3.6	4.5	5.0	3.5	11
Suprasternale	4.6	4.3	4.7	2.2	5
10th Rib	2.6	4.3	4.6	4.5	5
Trochanterion	3.5	3.7	15.6	14.0	7*
Waist (NI)	3.4	2.8	4.1	3.4	4
Waist (O)	6.5	4.6	5.6	4.7	7
Wrist	6.0	11.2	11.4	9.2	11

\* Allowable error is not the maximum mean difference.

TABLE 43. Sitting Heights: Observer Error Test (in mm).

	Mean Difference A.M. <u>Trial 1</u>	Mean Difference A.M. <u>Trial 2</u>	Mean Difference P.M. <u>Trial 1</u>	Mean Difference P.M. <u>Trial 2</u>	Allowable Error
Acromial	6.5	6.4	9.4	6.9	9
Cervicale	3.9	4.2	9.6	2.7	10
Elbow Rest	6.4	7.8	6.2	9.8	10
Eye	7.9	5.6	7.6	6.1	8
Knee	1.6	1.3	1.8	1.8	2
Midshoulder	5.8	5.8	8.7	6.7	9
Popliteal	2.4	3.5	6.7	3.3	7
Sitting	5.7	5.7	4.4	4.1	6
Thigh Clearance	3.3	3.3	2.6	2.4	3
Waist (NI)	5.6	4.4	4.8	4.9	6
Waist (O)	8.3	4.9	5.1	7.7	8
Wrist	9.1	10.4	8.8	9.7	10

TABLE 44. Lengths: Observer Error Test (in mm).

	Mean Difference A.M. <u>Trial 1</u>	Mean Difference A.M. <u>Trial 2</u>	Mean Difference P.M. <u>Trial 1</u>	Mean Difference P.M. <u>Trial 2</u>	Allowable <u>Error</u>
Acromion-Radiale	3.1	3.2	3.6	1.6	4
Buttock-Knee	6.1	3.9	4.2	4.6	6
Buttock-Popliteal	5.4	7.3	6.6	4.5	7
Crotch (NI)	11.8	12.9	16.0	15.3	16
Crotch (O)	14.0	6.5	17.6	18.4	18
Crotch, Post (NI)	10.5	7.6	10.1	11.0	11
Crotch, Post (O)	7.7	6.9	11.4	9.8	11
Forearm-Hand	2.9	2.7	3.9	3.4	4
Functional Leg	12.8	9.6	16.6	5.9	17
Interscye I	9.4	8.5	7.5	8.4	10*
Interscye II	12.8	6.0	5.6	10.6	13
Neck-Bustpoint	5.6	13.6	3.4	3.0	8*
Radiale-Stylion	6.4	3.5	3.2	2.4	6
Scye Depth	1.6	2.1	4.0	2.6	4
Shoulder	3.0	2.8	3.2	2.5	3
Shoulder-Elbow	4.2	6.4	3.2	2.2	6
Sleeve Outseam	3.4	2.8	2.8	5.7	6
Spine-Elbow	10.2	5.5	6.4	5.8	10
Spine-Scye	11.0	6.6	5.4	6.6	11
Spine-Wrist	9.1	4.3	7.7	5.6	9
Strap	9.8	6.4	9.2	8.4	12*
Waist Back (NI)	2.6	4.2	3.5	4.7	5
Waist Back (O)	4.9	3.1	3.9	4.2	5
Waist Front (NI)	3.2	2.0	4.2	3.7	5*
Waist Front (O)	5.4	2.5	7.8	4.1	5*
Waist-Hip	3.2	3.0	4.9	10.0	6*
Waist-Waist	3.0	2.1	2.3	1.9	3

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\* Allowable error is not the maximum mean difference.

TABLE 45. Breadths: Observer Error Test (in mm).

	Mean Difference A.M. <u>Trial 1</u>	Mean Difference A.M. <u>Trial 2</u>	Mean Difference P.M. <u>Trial 1</u>	Mean Difference P.M. <u>Trial 2</u>	Allowable <u>Error</u>
Biacromial	7.8	4.6	6.9	6.5	8
Bideltoid	7.4	6.6	6.7	7.9	8
Bimalleolar	0.7	0.8	1.4	1.2	2*
Bispinous	3.3	3.1	1.8	3.0	3
Bustpoint/Thelion- Bustpoint/Thelion	8.2	4.0	12.7	8.4	10
Chest	3.8	5.5	6.1	7.6	8
Forearm-Forearm	9.8	15.3	17.3	8.5	17
Hip	3.0	3.6	7.0	4.7	7
Hip, Sitting	3.2	4.2	6.4	3.4	6
Waist (O)	2.6	3.8	5.7	3.1	6

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\* Allowable error is not the maximum mean difference.

TABLE 46. Depths (in mm) and Weight (in kg): Observer Error Test.

	Mean Difference A.M. <u>Trial 1</u>	Mean Difference A.M. <u>Trial 2</u>	Mean Difference P.M. <u>Trial 1</u>	Mean Difference P.M. <u>Trial 2</u>	Allowable <u>Error</u>
Abdominal Ext	9.4	8.7	10.4	8.9	10
Buttock	5.4	5.2	8.3	7.8	8
Chest	2.7	3.7	4.2	3.0	4
Waist (O)	4.8	3.5	4.2	7.5	8
Weight	.20	.24	.25	.21	.3

TABLE 47. Large Circumferences: Observer Error Test (in mm).

	Mean Difference A.M. <u>Trial 1</u>	Mean Difference A.M. <u>Trial 2</u>	Mean Difference P.M. <u>Trial 1</u>	Mean Difference P.M. <u>Trial 2</u>	Allowable Error
Buttock	7.8	11.7	5.7	7.8	12
Chest	14.1	8.5	15.0	9.6	15
Chest at Scye	9.0	12.4	24.0	11.0	15*
Chest Below Breast	6.7	6.7	15.9	13.2	16
Shoulder	15.8	21.5	9.0	12.1	22
VTC (ASCC)	13.8	21.5	16.6	17.1	22
VTC (USA)	23.7	21.3	17.0	12.7	24
Waist (NI)	10.8	10.1	9.8	10.3	11
Waist (O)	9.5	8.6	12.4	12.3	12

\* Allowable error is not the maximum mean difference.

TABLE 48. Small Circumferences: Observer Error Test (in mm).

	Mean Difference A.M. <u>Trial 1</u>	Mean Difference A.M. <u>Trial 2</u>	Mean Difference P.M. <u>Trial 1</u>	Mean Difference P.M. <u>Trial 2</u>	Allowable Error
Ankle	2.4	1.6	2.3	1.6	4
Axillary Arm	8.4	5.2	5.7	6.4	8
Biceps, Flexed	6.2	4.0	2.7	4.1	6
Calf	1.5	5.0	1.9	3.2	5
Elbow	3.5	3.7	4.3	4.1	4
Forearm, Flexed	3.8	4.4	4.6	4.5	5
Heel/Ankle	3.3	3.2	5.1	3.2	6*
Knee	4.3	4.2	2.8	3.9	4
Lower Thigh	4.3	3.5	3.1	7.0	4*
Neck	5.3	6.3	4.8	4.4	6
Neck, Base	9.6	5.7	10.5	6.1	11
Scye	12.1	10.6	12.2	10.6	13*
Thigh	4.5	5.9	4.4	5.4	6
Wrist	4.5	3.9	3.7	3.3	5

\* Allowable error is not the maximum mean difference.

TABLE 49. Head: Observer Error Test (in mm).

	Mean Difference A.M. <u>Trial 1</u>	Mean Difference A.M. <u>Trial 2</u>	Mean Difference P.M. <u>Trial 1</u>	Mean Difference P.M. <u>Trial 2</u>	Allowable Error
Bitracion Chin Arc	2.9	2.3	7.6	10.3	8*
Bitracion Coronal Arc	6.9	3.0	6.3	4.8	7
Bitracion Crinion Arc	4.6	2.4	2.3	3.1	5
Bitracion Frontal Arc	3.6	2.2	5.4	4.0	5
Bitracion Submandibular	3.7	5.8	5.0	6.0	6
Bitracion Subnasale Arc	3.5	3.0	5.2	5.6	6
Bizygomatic Breadth	0.9	1.2	0.8	0.8	2**
Ear Breadth	0.8	1.5	1.6	3.2	3
Ear Length	0.5	1.7	1.5	1.3	2
Ear Length Above Tragon	1.9	1.9	1.8	2.2	2
Ear Protrusion	1.1	1.5	2.2	1.6	3*
Head Breadth	0.5	1.1	1.0	0.5	2**
Head Circumference	2.9	3.5	3.7	5.6	5*
Head Length	1.6	1.2	0.9	1.2	2
Interpupillary Breadth					2**
Menton-Sellion Length	2.2	2.1	2.1	2.1	3*

\* Allowable error is not the maximum mean difference.

\*\* Minimum allowable error is 2 mm.

TABLE 50. Hand and Foot: Observer Error Test (in mm).

	Mean Difference A.M. <u>Trial 1</u>	Mean Difference A.M. <u>Trial 2</u>	Mean Difference P.M. <u>Trial 1</u>	Mean Difference P.M. <u>Trial 2</u>	Allowable Error
Hand Breadth	1.1	1.0	0.6	1.1	2*
Hand Circumference	2.4	2.3	3.0	3.5	4
Hand Length	2.6	1.5	1.8	2.4	3
Thickness	3.3	2.6	3.2	3.0	3
Thumb Breadth	0.7	0.6	0.6	0.4	2*
Wrist-Center of Grip	1.9	4.1	3.9	3.7	4
Wrist-Index Finger Lgth	1.9	3.6	1.6	1.6	4
Wrist-Thumbtip	2.0	2.8	2.4	2.0	3
Ball of Foot Length	4.5	5.7	1.6	1.7	6
Ball of Foot Circ	4.1	3.4	3.6	2.1	4
Foot Breadth	2.2	1.4	-	2.0	2
Foot Length	2.5	3.0	1.6	1.4	3
Heel Breadth	1.5	1.4	1.2	1.5	2

\* Minimum allowable error set at 2 mm.



TABLE 51. Reaches: Observer Error Test (in mm).

	Mean Difference A.M. <u>Trial 1</u>	Mean Difference A.M. <u>Trial 2</u>	Mean Difference P.M. <u>Trial 1</u>	Mean Difference P.M. <u>Trial 2</u>	Allowable Error
Overhead Fingertip	21.8	20.2	15.1	7.6	20*
Overhead Fingertip, Ext	14.8	6.2	10.7	7.8	20*
Overhead Fingertip, Sit	16.2	11.7	20.0	13.1	20
Span	7.5	9.2	8.2	8.9	10*
Thumbtip	15.9	11.6	16.5	8.1	20*
	17.9	14.6	15.1	14.8	20*
	14.2	18.0	7.0	20.6	20*
Wrist-Wall	17.4	13.5	18.3	6.7	20*
	18.5	14.3	12.8	12.1	20*
	11.2	14.9	7.3	17.2	20*
Wrist-Wall, Ext	21.8	13.1	11.2	9.6	20*
	18.7	14.9	17.8	10.2	20*
	18.1	15.9	11.1	10.1	20*

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\* Allowable error is not the maximum mean difference.

errors, as one might expect. The interscye errors are large relative to the size of the dimension. Interscye I is difficult to measure because of the endpoints (on the axillary fold). The Waist-Hip Length allowable error is not the maximum mean difference. A problem experienced by one of the investigators in distinguishing between the buttock (hip) and trochanterion landmarks again resulted in some inappropriate values. The investigator pairs in which he was involved were eliminated, and the other values were used to set the allowable error. As noted earlier, the allowable errors for Strap Length and Neck-Bustpoint/Thelion Length were set after data collection began.

Body breadth error data are displayed in Table 45. These errors are for the most part quite small. The allowable error was set for Bustpoint/Thelion-Bustpoint/Thelion Breadth and Interpupillary Breadth after data collection began.

Table 46 contains information on the error trials for body depths and weight. It is interesting to note that Chest Depth and Waist Depth (Omphalion) have rather different errors, when both are affected by breathing.

The data from Cameron (1984)<sup>20</sup> and Chumlea et al. (1984)<sup>24</sup> would lead us to expect that observer errors on large circumferences would be among the greatest. Table 47, which contains the large circumference data for this study bears out this supposition. All values on the table are substantially higher than those seen on Tables 42 through 46. Reasons for this are: (1) the dimensions themselves are large, (2) slight deviations from a true horizontal can have a significant impact on the dimension, and (3) variations in the breathing cycle. The allowable error for Chest Circumference at Scye was not set at the maximum mean difference since there was considerable variability in the mean differences for this dimension. The repeatability of this dimension was improved in the field.

As expected, the errors for the smaller circumferences (Table 48) are much smaller than those for the larger circumferences. Axillary Arm Circumference and Scye Circumference are among the largest errors because of the softness of the tissue involved. It is very difficult to judge the tension of the tape on these dimensions. Tape placement is particularly difficult on Heel-Ankle Circumference.

Table 49 shows error data for all the head dimensions. In general the allowable errors are quite small, as of course the dimensions are quite small. Those which include the hair (Head Circumference, Bitragion Coronal Arc) and those which include soft or fleshy tissue (Bitragion Submandibular Arc, Bitragion Subnasale Arc) tend to be somewhat larger. There were four dimensions for which the maximum mean difference was not chosen as the allowable error. For Head Circumference and Bitragion Chin Arc, mean differences were considerably outside the range of the other mean differences, so lower values were selected. On Bizygomatic Breadth and Head Breadth, selecting the maximum mean difference would have meant an allowable error of one mm. Although these are quite reliable dimensions, we felt that the implications of having an allowable error of only one mm in the field were unacceptable. We therefore set a minimum allowable error of two mm for any dimension on the survey. That limit was applied in these two cases.

The hand and foot dimensions have been combined in Table 50. The allowable errors for all of these dimensions are under one cm and most are five mm or less. The maximum differences of 0.7 mm for Thumb Breadth and 1.1 mm for Hand Breadth were increased to two mm for the allowable error, as discussed above.

The final table, Table 51, shows error data for the reach dimensions. The large errors inherent in functional dimensions were noted earlier. The error data from Table 51 bear this out. For Thumbtip Reach, Wrist-Wall and Wrist-Wall, Extended, the measurement was taken three times in the field, and was taken three times in these trials.

Overall, the error tests led directly to the establishment of allowable error for 103 dimensions where the highest rounded mean value was selected. For five dimensions, the allowable error was set at the survey minimum of 2 mm, even when the error tests indicated a lower value. For 24 dimensions the allowable error was not set at the highest mean value from the error tests. In these cases, a combination of experience with the dimension and an examination of individual deltas from the error tests led to the establishment of allowable errors either above or below those indicated by the error test mean values.

## DAILY OBSERVER ERROR

As noted in Chapter II, data collection was organized into half-day units. Each half day each station measured a subject twice. Each station therefore had a total of 10 remeasure subjects each week. The remeasure subjects were directed to each station in such a way that for the remeasure the subject was not measured by the same measurer who measured him/her the first time. Thus all data collected were interobserver data. At the end of each week, survey software (Churchill et al., 1988)<sup>7</sup> printed a weekly summary of remeasure data for each station. An example of that software output for Station 4 (head and hand dimensions) is seen in Table 52. The 10 individual deltas (the absolute value of the difference between one measurer's value and the other's) are listed, as well as the n (number of repeat subjects that week), the mean of the deltas and the allowable error for each dimension. With each weekly printout, individual values exceeding the allowable error were circled. If the mean of the deltas exceeded the allowable error, the team supervisor met with the measurers at that station to determine the cause of the difficulty. Even when no mean delta exceeded the allowable error, however, the weekly summary was shown to the measurers so they could monitor their own performance over the course of the survey.

Since each subject involved in the remeasure study was generally remeasured at only one station, the number of subjects remeasured at a given station is much smaller than the total number of individuals involved in the study. There were 1,460 males and 899 females who were remeasured. The number of males per station ranged from 240 at Station 2 to 256 at Station 1. For females the range is from 155 at Station 2 to 174 at Station 3. The n's vary slightly from station to station because remeasure data were not collected during measuring sessions when one of the regular measurers was absent from work.

Tables 53 to 62 show the means and standard deviations of the absolute values of the deltas for each measured dimension. The right-hand columns show the allowable observer error for each dimension. As in earlier tables, dimensions are grouped by type. In each case, the mean absolute difference (observer error) is lower than the allowable error. Nevertheless, the observer errors range from a low of 0.2 mm on Thumb Breadth (both males and females) to a high of 12.06 mm for the male VTC (USA) and 13.8 mm for the female Wrist-Wall Length, Extended. Although the observer errors are always lower than the allowable errors, the larger observer errors are associated with dimensions which have the larger allowable errors. The standing heights (Table 53) generally have observer errors in the 2 to 4 mm range, with the exception of Wrist Height, which is highly position dependent, and Crotch Height, which involves subjective judgment about the amount of

TABLE 52. Sample Software Output for Remeasured Subjects of Station 4.

<u>Dimension</u>	<u>Deltas</u>										<u>Mean</u>	<u>AE</u>
Head Circumference	0	0	1	4	1	1	1	1	2	0	1.10	5
Bitracion Coronal Arc	2	4	4	1	3	1	3	3	2	1	2.40	7
Bitracion Crinion Arc	3	1	1	2	2	2	2	3	2	0	1.80	5
Bitracion Frontal Arc	0	4	3	4	2	1	5	5	2	1	2.70	5
Bitrag Subnasale Arc	2	2	4	0	0	2	1	1	2	4	1.80	6
Bitracion Chin Arc	2	1	0	3	1	3	1	1	0	3	1.50	8
Bitracion Submand Arc	3	7	7	1	1	1	3	2	3	4	3.20	6
Bizygomatic Brdth	0	0	1	1	0	0	1	0	1	1	0.50	2
Head Length	1	0	1	0	1	0	1	1	1	0	0.60	2
Head Breadth	0	0	0	1	1	2	0	0	0	1	0.50	2
Menton-Sellion L	1	3	1	2	2	4	2	1	3	3	2.20	3
Ear Length	0	0	1	0	0	1	2	1	1	1	0.70	2
Ear Length above Trag	2	2	3	0	1	2	2	1	0	2	1.50	2
Ear Breadth	2	1	2	1	0	0	1	2	1	1	1.10	3
Ear Protrusion	3	1	1	2	0	1	1	1	2	0	1.20	3
Interpupillary Breadth	0	0	0	1	0	0	0	1	0	0	0.20	2
Thumb Breadth	0	0	0	0	0	1	0	0	1	0	0.20	2
Wrist-Thumbtip Length	3	2	2	0	1	1	1	1	0	1	1.20	3
Wrist-Center of Grip L	1	4	2	0	1	2	4	3	1	2	2.00	4
Hand Length	2	0	2	0	1	1	1	1	4	2	1.40	3
Wrist-Index Finger L	0	1	1	1	1	4	1	1	2	3	1.50	4
Hand Breadth	2	1	0	1	1	0	0	2	1	1	0.90	2
Hand Circumference	1	1	1	0	2	2	2	2	1	4	1.60	4

TABLE 53. Observer Error for Standing Heights (in mm).

	Males		Females		Allowable Observer Error
	<u>n</u>	Mean Absolute Diff	<u>n</u>	Mean Absolute Diff	
Acromial Height	256	3.42	169	3.62	7
Axilla Height	256	3.20	169	3.26	10
Buttock Height	247	1.45	174	1.78	7
Calf Height	240	1.10	155	1.19	3
Cervicale Height	256	2.34	169	2.30	7
Chest Height	256	3.91	169	4.24	11
Crotch Height	247	6.02	174	3.52	10
Gluteal Furrow Height	247	2.28	174	2.05	6
Iliocristale Height	256	2.15	169	2.83	5
Knee Height Midpatella	240	2.43	155	2.33	6
Lateral Femoral Epicondyle Ht	240	1.30	155	1.43	3
Lateral Malleolus Height	239	.71	155	.61	3
Neck Height, Lateral	256	2.48	169	2.35	7
Stature	256	2.94	169	2.72	11
Suprasternale Height	256	2.83	169	2.67	5
Tenth Rib Height	256	2.31	169	2.02	5
Trochanteric Height	247	1.76	174	1.72	7
Waist Height (NI)	256	2.21	169	2.16	4
Waist Height (O)	256	2.74	169	2.98	7
Wrist Height	247	6.29	174	4.99	11

TABLE 54. Observer Error for Sitting Heights (in mm).

	Males		Females		Allowable Observer Error
	<u>n</u>	Mean Absolute Diff	<u>n</u>	Mean Absolute Diff	
Acromial Height, Sitting	249	4.82	170	3.92	9
Cervicale Height, Sitting	249	2.95	170	2.39	10
Elbow Rest Height	249	5.02	170	4.37	10
Eye Height, Sitting	249	4.36	170	3.82	8
Knee Height, Sitting	249	.73	170	.78	2
Midshoulder Height, Sitting	248	3.80	168	3.30	9
Popliteal Height	249	2.42	170	2.21	7
Sitting Height	249	3.14	170	2.77	6
Thigh Clearance	249	1.55	170	1.44	3
Waist Height, Sitting (NI)	249	2.76	170	2.79	6
Waist Height, Sitting (O)	249	3.17	170	3.16	8
Wrist Height, Sitting	240	7.93	155	7.88	10

TABLE 55. Observer Error for Lengths (in mm).

	Males		Females		Allowable Observer Error
	<u>n</u>	Mean Absolute Diff	<u>n</u>	Mean Absolute Diff	
Acromion-Radiale Length	256	1.41	169	1.81	4
Buttock-Knee Length	248	3.92	170	3.58	6
Buttock-Popliteal Length	249	4.84	170	4.53	7
Crotch Length (NI)	247	8.96	174	7.10	16
Crotch Length (O)	247	9.47	174	5.35	18
Crotch Length, Posterior (NI)	247	5.91	174	6.52	11
Crotch Length, Posterior (O)	247	5.94	174	5.55	11
Forearm-Hand Length	256	1.94	169	1.93	4
Functional Leg Length	247	7.50	173	6.09	17
Interscye I	246	6.39	162	6.21	10
Interscye II	246	5.85	162	5.46	13
Neck-Bustpoint/Thelion Length	246	3.00	162	3.24	8
Radiale-Stylian Length	256	2.87	169	2.33	6
Scye Depth	246	3.33	162	1.95	4
Shoulder-Elbow Length	256	1.99	169	2.15	6
Shoulder Length	246	2.15	162	2.25	3
Sleeve Outseam	246	3.91	162	2.91	6
Sleeve Length: Spine-Elbow	246	4.63	162	3.94	10
Sleeve Length: Spine-Scye	246	6.24	162	4.46	11
Sleeve Length: Spine-Wrist	246	5.20	162	5.07	9
Strap Length	246	5.00	162	6.17	12
Waist (NI) - Waist (O)	247	1.32	174	1.01	3
Waist Back Length (NI)	246	3.54	162	2.53	5
Waist Back Length (O)	246	3.56	162	2.88	5
Waist Front Length (NI)	246	3.15	162	2.51	5
Waist Front Length (O)	246	3.60	162	3.44	5
Waist-Hip Length	247	1.92	174	1.60	6

TABLE 56. Observer Error for Breadths (in mm).

	Males		Females		Allowable Observer Error
	<u>n</u>	Mean Absolute Diff	<u>n</u>	Mean Absolute Diff	
Biacromial Breadth	249	3.62	170	3.57	8
Bideltoid Breadth	249	3.92	170	2.98	8
Bimalleolar Breadth	247	.62	174	.34	2
Bispinous Breadth	247	2.33	174	1.76	3
Bustpoint/Thelion-Bstpt/T Br	256	3.62	169	3.83	10
Chest Breadth	256	3.35	169	3.41	8
Forearm-Forearm Breadth	249	9.25	170	7.79	17
Hip Breadth	256	2.16	169	2.76	7
Hip Breadth, Sitting	249	2.40	170	2.36	6
Waist Breadth (O)	256	2.03	169	3.09	6

TABLE 57. Observer Error for Depths (in mm) and Weight (in kg).

	Males		Females		Allowable Observer Error
	<u>n</u>	Mean Absolute Diff	<u>n</u>	Mean Absolute Diff	
Abdominal Ext Depth, Sitting	249	4.00	170	5.02	10
Buttock Depth	247	4.22	174	3.23	8
Chest Depth	256	2.87	169	3.05	4
Waist Depth (O)	256	2.60	169	2.82	8
Weight	246	0.12	162	0.08	0.3

TABLE 58. Observer Error for Large Circumferences (in mm).

	Males		Females		Allowable Observer Error
	<u>n</u>	Mean Absolute Diff	<u>n</u>	Mean Absolute Diff	
Buttock Circumference	247	4.15	174	4.37	12
Chest Circ Below Breast	246	7.44	162	6.06	16
Chest Circumference	246	6.88	162	6.22	15
Chest Circumference At Scye	246	6.74	161	6.53	15
Shoulder Circumference	246	5.86	162	5.14	22
VTC (ASCC)	247	10.74	174	8.35	22
VTC (USA)	247	12.06	174	9.82	24
Waist Circumference (NI)	246	4.79	162	4.56	11
Waist Circumference (O)	246	4.33	162	6.34	12

TABLE 59. Observer Error for Small Circumferences (in mm).

	Males		Females		Allowable Observer Error
	<u>n</u>	Mean Absolute Diff	<u>n</u>	Mean Absolute Diff	
Ankle Circumference	227	1.44	159	1.53	4
Axillary Arm Circumference	256	3.23	169	3.22	8
Biceps Circumference, Flexed	256	2.48	169	2.92	6
Calf Circumference	227	1.39	159	1.53	5
Elbow Circumference	256	1.47	169	1.45	4
Forearm Circumference, Flexed	256	2.61	169	2.16	5
Heel Ankle Circumference	227	1.63	159	1.44	6
Knee Circumference	227	2.23	159	3.15	4
Lower Thigh Circumference	227	2.04	159	2.48	4
Neck Circumference	246	3.28	162	2.55	6
Neck Circumference, Base	246	3.61	162	3.12	11
Scye Circumference	246	5.69	162	5.46	13
Thigh Circumference	247	3.67	174	2.53	6
Wrist Circumference	256	1.38	169	1.14	5



TABLE 60. Observer Error for Head Dimensions (in mm).

	Males		Females		Allowable Observer Error
	<u>n</u>	Mean Absolute Diff	<u>n</u>	Mean Absolute Diff	
Bitracion Chin Arc	247	1.40	160	1.30	8
Bitracion Coronal Arc	247	1.98	160	2.33	7
Bitracion Crinion Arc	246	1.69	160	1.89	5
Bitracion Frontal Arc	247	1.71	160	1.71	5
Bitracion Submandibular Arc	247	2.63	160	2.80	6
Bitracion Subnasale Arc	247	1.45	160	1.46	6
Bizygomatic Breadth	247	.58	160	.61	2
Ear Breadth	247	.61	160	.81	3
Ear Length	247	.53	160	.48	2
Ear Length Above Tragon	247	.62	160	.63	2
Ear Protrusion	247	.68	160	.79	3
Head Breadth	247	.47	160	.53	2
Head Circumference	247	.82	160	1.19	5
Head Length	247	.58	160	.57	2
Interpupillary Breadth	246	.20	160	.23	2
Menton-Sellion Length	247	1.05	160	1.01	3

TABLE 61. Observer Error for Hand and Foot Dimensions (in mm).

	Males		Females		Allowable Observer Error
	<u>n</u>	Mean Absolute Diff	<u>n</u>	Mean Absolute Diff	
Hand Breadth	247	.32	160	.42	2
Hand Circumference	247	.96	160	.56	4
Hand Length	247	1.17	160	.99	3
Thumb Breadth	247	.20	160	.20	2
Wrist-Center of Grip Length	247	1.47	160	1.56	4
Wrist-Index Finger Length	247	.98	160	.79	4
Wrist-Thumbtip Length	247	.89	160	1.16	3
Ball of Foot Circumference	227	2.07	159	1.82	4
Ball of Foot Length	241	.73	160	.79	6
Foot Breadth, Horizontal	241	.56	160	.60	2
Foot Length	241	.53	160	.47	3
Heel Breadth	247	1.06	174	.46	2

TABLE 62. Observer Error for Reaches (in mm).

	Males		Females		Allowable Observer Error
	<u>n</u>	Mean Absolute Diff	<u>n</u>	Mean Absolute Diff	
Overhead Fingertip Reach	240	11.59	155	12.03	20
Overhead Fingertip Reach, Ext	240	10.93	155	10.86	20
Overhead Fingertip Reach, Sit	240	10.60	155	10.21	20
Span	240	7.24	155	7.38	10
Thumbtip Reach	240	11.05	155	10.30	20
Wrist-Wall Length	240	11.31	155	10.77	20
Wrist-Wall Length, Extended	240	11.60	155	13.80	20

pressure used. Errors in the sitting heights (Table 54) are somewhat higher, being generally in the 3 to 5 mm range. Observer error for Knee Height, Sitting is less than a millimeter, however, because it is relatively insensitive to position, whereas Wrist Height, Sitting error, at nearly 8 mm, is highly sensitive to position.

The errors for body lengths (Table 55) range generally from 2 mm to 7 mm. The lower errors are associated with dimensions encompassing two bony landmarks, e.g. Acromion-Radiale Length (1.41 mm males; 1.81 mm females). The higher errors are for dimensions involving soft tissue landmarks, e.g., Interscye I (6.39 mm males; 6.21 mm females). All four crotch lengths are relatively high because of variable tape tension. Functional Leg Length is also high; this can be attributed to the difficulty of achieving consistency in body position.

Observer errors for breadths and depths (Tables 56 and 57) range generally from 2 to 5 mm. A single exception is Forearm-Forearm Breadth (9.25 mm males; 7.79 mm females) for which both body position and breathing cycle are important factors in measurement. The large horizontal circumference errors (Table 58) range from 4 to 7 mm, while the vertical circumference errors range from 8 to 12 mm. It is interesting to observe that the observer error for males [10.74 mm and 12.06 mm for VTC (ASCC) and VTC (USA), respectively] are more than 2 mm greater than the comparable values for females (8.35 mm and 9.82 mm). These dimensions were measured at Station 3, the gender-specific station, where male and female subjects were measured by same-sex measurers. The differences in observer error may be due to difficulty in standardizing tape tension near the male genitalia, or it may be due to a greater skill level attained by the female measurers at that station. The observer errors for small circumferences (Table 59) as a whole range from 1 mm to 4 mm. However, Scye Circumference, in which it is difficult to maintain tape position after the arm is lowered, had errors between 5 mm and 6 mm.

Observer errors for the head (Table 60), hand, and foot dimensions (Table 61) are generally quite low. All are under 3 mm, and many are under 1 mm. These dimensions are small in magnitude, and body position and breathing cycle are generally not important in their measurement. The reaches (Table 62), on the other hand, are the most sensitive of all dimensions to body positioning difficulties. This is reflected in the observer errors which are the highest for any group of dimensions. The observer errors for most reaches range from 10 mm to 14 mm. Span has observer errors of just over 7 mm.

As noted in the introductory paragraphs to this chapter, presetting an allowable error and continuously collecting error data during standard data collection are methods which have not been used in other U.S. military surveys. It is therefore well to evaluate the utility of this approach and consider whether changes should be made if it were to be used in a future survey.

The allowable errors were of considerable value in monitoring the progress of training. In the past, the assessment of whether team members were ready to begin data collection was subjective. In the present case, there was a fixed standard, the allowable error, which told both trainers and team members alike when the team was ready to end training. Allowable errors also aided in maintaining measurement standards and avoiding measurer drift over the course of a long data collection period. This was of critical importance because the survey took place over nearly a year, with as much as one to two weeks between some measuring sites.

A potential disadvantage of establishing allowable observer errors is that team members might strive to achieve that level of interpair comparability and then stop trying to improve. As all the mean observer errors are considerably lower than the allowable error, however, this appears not to have been the case in this survey. It remains as a potential difficulty, however, in cases where team motivation is a problem.

Observer error measured on a daily basis, as was done in this survey, has two additional advantages. First, because it is collected throughout the survey, the data collected can be assumed to be "real", that is, not an artifact of the team making special efforts for a single day of remeasured subjects. Second, the daily checking can be used to detect measurement technique problems as soon as they arise, and they can be corrected, before the problems become entrenched in the data.

There are two disadvantages to daily collection of observer error data, although they are believed to be outweighed by the advantages. First, the remeasure subjects, who are generally not especially pleased to be measured in the first place, are even less pleased to be measured again. This is generally not a significant problem with military subjects who are accustomed to following orders. Second, time spent measuring subjects a second time is time not spent measuring new subjects. Specifically, in the present survey an additional 240 males and 155 females could have been measured over the course of the year if the daily observer error checking had not been done. This is a small price to pay for the assurance of data quality gained by including the daily error checks. No modifications in the approach to daily observer error data collection are recommended.

#### ESTIMATED OBSERVER ERROR FOR DERIVED DIMENSIONS

Observer error for derived dimensions obviously has no place in correcting problems of measurement technique, since these dimensions are not calculated until the survey is completed. Because the observer error data are useful in assessing statistical significance tests or in analyzing or developing sizing systems and laying out workstations, however, it is helpful to know the magnitude of the observer error of these dimensions, even after the fact. The most precise way to estimate observer error for these dimensions would be to take the mean value of absolute differences between the derived dimension for Measurer A and the derived dimension for Measurer B. This approach was not possible because most dimension pairs or triplets used in the creation of the derived dimensions were generally not measured at the same station. For example, in the case of Elbow-Wrist Length, which is derived by subtracting Hand Length from Forearm-Hand Length, different subjects were used for error data on Hand Length (Station 4) than were used for error data on Forearm-Hand Length (Station 1). It will be recalled that groups of dimensions were originally assigned to stations in order to achieve a smooth sequence of measurements -- a strategy designed in part to minimize errors resulting from multiple changes of subject posture and measurers' positions.

Since direct calculation of observer error for the derived dimensions was not generally possible, we employed the alternative strategy of estimating observer error using the observer error of the component dimensions. Most of the derived dimensions are calculated by adding or subtracting values of other dimensions. For these dimensions, the observer error is estimated as less than or equal to the sum of the mean absolute differences of all component dimensions. Note that addition is used whether the component dimensions are added or subtracted to create the derived dimension. For Clavicle Link, which is created by dividing Biacromial Breadth by 2,

the observer error is estimated by dividing the observer error of Biacromial Breadth by 2. In the case of Shoulder Slope, which is calculated as the Arcsin of a ratio, it is not possible to estimate the observer error using the mean absolute differences of the component dimensions. As the component dimensions were not measured at the same station, it is also impossible to calculate the observer error of this dimension directly. Other dimensions for which estimated observer error cannot be calculated are: Eye-Tragion Link, Neck Link and Tragion Height. These dimensions are derived using automated headboard data, for which observer error data were not recorded.

A model derivation, showing how the observer error for derived dimensions can be estimated using the mean absolute difference of component dimensions is shown below for two types of calculation. The first is a derived dimension, which is created by subtraction. The same demonstration could be used for dimensions created by addition alone, by two subtractions or by a combination of additions and subtraction. The second shows how the observer error for Clavicle Link can be calculated from the mean absolute difference of Biacromial Breadth.

Let  $z$  be the calculated dimension, and  $x, y$  be the measured dimensions. The mean absolute difference will be abbreviated "MAD".

$$z = x - y \quad \text{MAD}(z) = ?$$

$$\text{MAD}(z) = \text{MAD}(x-y)$$

$$= \frac{\sum_{i=1}^n | (x_{1i} - y_{1i}) - (x_{2i} - y_{2i}) |}{n}$$

where  $x_{1i}, x_{2i}, y_{1i}, y_{2i}$  ( $i=1\dots n$ ), are the measurements for the  $i$ th individual; and  $x_{1i}, y_{1i}$  are measurements for observer 1.

$$= \frac{\sum_{i=1}^n | (x_{1i} - x_{2i}) - (y_{1i} - y_{2i}) |}{n}$$

$$\leq \frac{\sum_{i=1}^n | (x_{1i} - x_{2i}) | + \sum_{i=1}^n | (y_{1i} - y_{2i}) |}{n}$$

$$\leq \frac{\sum_{i=1}^n | (x_{1i} - x_{2i}) |}{n} + \frac{\sum_{i=1}^n | (y_{1i} - y_{2i}) |}{n}$$

$$\leq \text{MAD}(x) + \text{MAD}(y)$$

$$\therefore \text{MAD}(z) \leq \text{MAD}(x) + \text{MAD}(y)$$

Let  $r$  be the calculated dimension and  $w$  be the measured dimension.

$$r = w/2 \quad \text{MAD}(r) = ?$$

$$\text{MAD}(r) = \text{MAD}(w/2)$$

$$= \frac{\sum_{i=1}^n | (w_{1i}/2 - w_{2i}/2) |}{n}$$

$$= \frac{1}{2} \frac{\sum_{i=1}^n | (w_{1i} - w_{2i}) |}{n}$$

$$= \frac{1}{2} \text{MAD}(w)$$

$$\therefore \text{MAD}(r) = \frac{1}{2} \text{MAD}(w)$$

The estimated observer errors for all derived dimensions for which estimation was possible are shown in Table 63. These values can be used for the same purposes as observer errors of measured dimensions, but the cautions which govern the use of derived dimensions in general (Chapter V) also govern the use of their estimated observer errors.

TABLE 63. Observer Error for Derived Dimensions.

	Males		Females	
	<u>n</u>	Mean Absolute <u>Diff</u>	<u>n</u>	Mean Absolute <u>Diff</u>
Abdominal Link	256	4.46	169	4.85
Acromion-Axilla Length	256	6.62	169	6.88
Arm Length		10.88		9.60
Axilla-Waist Length (NI)	256	5.41	169	5.42
Axilla-Waist Length (O)	256	5.94	169	6.24
Calf Link		2.01	155	2.04
Chest Height, Sitting		9.99		9.73
Chest-Waist Drop (NI)	246	11.67	162	10.78
Chest-Waist Drop (O)	246	11.21	162	12.56
Clavicle Link	249	1.81	170	1.78
Crotch Length, Ant (NI)	247	14.87	174	13.62
Crotch Length, Ant (O)	247	15.41	174	10.90
Dactylion Height		7.46		5.98
Dactylion Reach From Wall		12.48		11.76
Dactylion Reach From Wall, Ext		12.77		14.79
Elbow Rest Height, Standing		11.10		9.86
Elbow-Center of Grip Length		4.58		4.48
Elbow-Wrist Length		3.11		2.92
Eye Height		10.44		9.31
Eye-Tragion Link		*		*
Functional Grip Reach		12.78		12.33
Functional Grip Reach, Ext		13.07		15.36
Index Finger Reach		12.29		11.56
Index Finger Reach, Ext		12.58		14.59
Neck Link		*		*
Neck-Buttock Length		3.79		4.08
Neck-Gluteal Furrow Length		4.62		4.35
Neck-Scye Length	256	5.54	169	5.56
Pelvic Link		3.91		4.55
Rise (NI)		8.23		5.68
Rise (O)		8.76		6.50
Shoulder Slope		*		*
Shoulder-Waist Length (NI)	256	5.63	169	5.78
Shoulder-Waist Length (O)	256	6.16	169	6.60
Sleeve Inseam		9.49		8.25
Suprasternale Height, Sit		8.91		8.16

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\* Observer error not estimated. See text.

TABLE 63. (cont'd)

	Males		Females	
	<u>n</u>	Mean Absolute <u>Diff</u>	<u>n</u>	Mean Absolute <u>Diff</u>
Thigh Link		3.06		3.15
Thorax Link	256	4.65	169	4.32
Thumbtip Reach, Ext		12.49		14.96
Vertical Grip Reach		14.23		14.58
Vertical Grip Reach Down		11.18		10.17
Vertical Grip Reach, Ext		13.57		13.41
Vertical Grip Reach, Sit		13.24		12.76
Vertical Index Fingertip Reach		13.74		13.81
Vertical Index Fingertip Reach Down		10.69		9.40
Vertical Index Fingertip Reach, Ext		13.08		12.64
Vertical Index Fingertip Reach, Sit		12.75		11.99
Vertical Thumbtip Reach Down		10.60		9.77
Vertical Thumbtip Reach, Sit		12.66		12.36
Vertical Wrist Height		12.76		13.02
Vertical Wrist Height, Ext		12.10		11.85
Vertical Wrist Height, Sit		11.77		11.20
Waist Back, Vertical (NI)	256	4.55	169	4.46
Waist Back, Vertical (O)	256	5.08	169	5.28
Waist-Buttock Drop (NI)		8.94		8.93
Waist-Buttock Drop (O)		8.48		10.71
Waist-Waist (NI) Over Shoulder		21.02		16.92
Waist-Waist (O) Over Shoulder		21.53		15.17



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## APPENDIX A.

### Uses of the Dimensions

Most of the measured and derived dimensions for which data are reported in this volume serve multiple design and sizing uses. Some, chiefly head, hand, and foot variables, are needed for the design of a particular class of item to be worn on that part of the body. All the dimensions serve at least one of twelve use categories described below:

Basic Body Descriptors: These are dimensions of overall body size and proportions. They are required to determine the anthropometric differences or similarities between populations. They are also used for selecting samples of subjects that are anthropometrically representative of a particular population for studies in which body size is of significance (e.g., the evaluation of the workstation layouts for a new Army tank).

Key Dimensions/Microcosm Selection: These dimensions serve as key or control dimensions for the design, sizing, procurement, and issuing of clothing and personal equipment. Key dimensions for men's dress shirt sizes, for example, are often Neck Circumference and Sleeve Length. In addition, key dimensions are useful for selecting anthropometrically representative samples of test subjects for evaluating the fit and function of new items.

Garments (Clothing/Personal Equipment): These dimensions are useful for the design and sizing of Army uniforms, utility garments, and personal protective equipment (e.g., body armor, respirators, chemical defense clothing).

Clothing Manikins: These are three-dimensional forms which represent specific body sizes and shapes. They are valuable guides for the design and sizing of clothing and personal equipment worn on the body. The better the manikins represent sizes of Army men and women, the better the fit and the less alteration required of garments designed over them.

Load-Carrying Systems: These dimensions are used for the design and sizing of systems worn by soldiers to carry full-field gear and other types of equipment. Load-carrying systems are of critical importance to the combat-effectiveness and well-being of Army troops and support personnel.

Head and Face Equipment: The dimensions in this group are used primarily in the design of personal protective equipment worn on the head and face and for the design of optical and auditory devices.

Gloves: These are hand, finger, wrist, and forearm measurements used in the design, sizing, and procurement of gloves and in the construction of hand forms used to guide the design of gloves.

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**Foot Gear:** These foot and ankle dimensions are needed for the design, sizing, procurement, and evaluation of shoes and boots.

**Workspace and Body Clearance:** Dimensions in this group are central to the design and layout of single- and multiperson workstations occupied by Army personnel. They are also of paramount importance in the design and layout of workstations of Army weapon systems, particularly those, like tanks, in which space is at a premium. Body clearance dimensions dictate, for example, the size of escape hatches and limited-size passageways that must be designed to allow quick and safe passage of an individual. In the field or in a depot, the performance of maintenance activities is also greatly enhanced if personnel have ready physical and visual access to maintenance and inspection ports, and have the reach capabilities to perform necessary service, repair, or replacement activities, often conducted under adverse conditions.

**Aircraft Accommodation:** The dimensions in this group are those that have been or are likely to be used to restrict individuals from operating aircraft with which they are anthropometrically incompatible. That is, certain aircraft do not safely and efficiently accommodate the complete range of body sizes found in aircrew personnel. Ideally, the more complete data that will be available from this survey can be used to avoid such problems in the future.

**Body Links:** These dimensions are needed for developing the link or "skeletal" system which is the foundation for all three-dimensional human models used to assess the body's reaction to hazardous environments, and for two- and three-dimensional models used in the design and evaluation of Army crew- and workstations.

**Anthropomorphic Analogues:** The dimensions in this group are useful for the development of four general types of models: (1) three-dimensional manikins and (2) three-dimensional computer-generated models (used to assess the body's reaction to high acceleration environments); (3) two-dimensional drawing-board manikins and (4) three-dimensional computer-generated, human-engineering analogues (used to guide the design and evaluation of workstations).

Table A-1 lists all the dimensions measured in the ANSUR survey, and designates the use or uses they may serve. It will be noted that Bizygomatic Breadth and Menton-Sellion Length are listed twice in the table. Both these dimensions were measured twice-once directly and once with the automated headboard. Data from the latter should be used in concert with other three-dimensional data obtained with the headboard for design purposes involving three-dimensional headforms. Applications for directly measured data include procurement tariffs and fitting.



TABLE A-1. Applications for the Measured and Derived Dimensions in the Army Survey.		Basic Body Descriptors	Key Dimen./Microcosms	Garments (Clothing/PE)	Clothing Manikins	Load-Carrying Systems	Head and Face Equipment	Gloves	Foot Gear	Workspace/Body Clearance	Aircraft Accommodation	Body Links	Anthropomorphic Analogues
(1) ABDOMINAL EXTENSION DEPTH, SIT				O						O			O
(D1) ABDOMINAL LINK				O	O					O		O	O
(2) ACROMIAL HEIGHT				O	O					O		O	O
(3) ACROMIAL HEIGHT, SITTING				O	O	O				O		O	O
(D2) ACROMION-AXILLA LENGTH				O	O	O							
(4) ACROMION-RADIALE LENGTH				O								O	
(H1) ALARE-BACK OF HEAD							O						
(H2) ALARE-TOF OF HEAD							O						
(5) ANKLE CIRCUMFERENCE				O	O				O				O
(D3) ARM LENGTH	O												
(6) AXILLA HEIGHT				O	O	O							
(D4) AXILLA-WAIST LENGTH (ND)				O	O	O							
(D5) AXILLA-WAIST LENGTH (O)				O	O	O							
(7) AXILLARY ARM CIRCUMFERENCE				O	O								O
(8) BALL OF FOOT CIRCUMFERENCE									O				O
(9) BALL OF FOOT LENGTH			O						O				
(10) BIACROMIAL BREADTH				O	O	O						O	O
(11) BICEPS CIRCUMFERENCE, FLEXED				O	O								
(12) BIDELOID BREADTH				O						O	O		O
(H3) BIGONIAL BREADTH							O						
(H4) BINFRAORBITALE BREADTH							O						
(13) BIMALLEOLAR BREADTH				O					O				O
(H5) BIOCLAR BREADTH, MAXIMUM							O						
(14) BISPINOUS BREADTH												O	
(H6) BITRAGON BREADTH							O						
(15) BITRAGON CHIN ARC							O						
(16) BITRAGON CORONAL ARC							O						
(17) BITRAGON CRINION ARC							O						
(18) BITRAGON FRONTAL ARC							O						
(19) BITRAGON SUBMANDIBULAR ARC							O						

TABLE A-1. Continued

	Basic Body Descriptors	Key Dimen./Microcosms	Garments (Clothing/PE)	Clothing Manikins	Load-Carrying Systems	Head and Face Equipment	Gloves	Foot Gear	Workspace/Body Clearance	Aircraft Accommodation	Body Links	Anthropomorphic Analogues
(20) BITRAGION SUBNASALE ARC						o						
(21) BIZYGOMATIC BREADTH		o				o						o
(H7) BIZYGOMATIC BREADTH						o						o
(22) BSTPT/THELION-BSTPT/THELION BR			o	o	o							
(23) BUTTOCK CIRCUMFERENCE		o	o	o								o
(24) BUTTOCK DEPTH			o	o					o			o
(25) BUTTOCK HEIGHT			o	o					o			o
(26) BUTTOCK-KNEE LENGTH			o						o	o		o
(27) BUTTOCK-POPLITEAL LENGTH									o			o
(28) CALF CIRCUMFERENCE			o	o								o
(29) CALF HEIGHT			o	o				o				o
(D6) CALF LINK											o	o
(30) CERVICALE HEIGHT			o	o	o						o	o
(31) CERVICALE HEIGHT, SITTING											o	o
(H8) CHEILION-BACK OF HEAD						o						o
(H9) CHEILION-TOP OF HEAD						o						
(32) CHEST BREADTH			o	o	o							o
(33) CHEST CIRCUMFERENCE		o	o	o	o							o
(34) CHEST CIRCUMFERENCE AT SCYE		o	o	o	o							
(35) CHEST CIRC BELOW BREAST			o	o	o							o
(36) CHEST DEPTH			o	o	o				o			o
(37) CHEST HEIGHT			o	o	o							o
(D7) CHEST HEIGHT, SITTING					o							
(D8) CHEST-WAIST DROP (NI)			o	o								
(D9) CHEST-WAIST DROP (O)			o	o								
(H10) CHIN-BACK OF HEAD						o						
(H11) CHIN-TOP OF HEAD						o						
(D10) CLAVICLE LINK											o	
(H12) CRINION-BACK OF HEAD						o						
(H13) CRINION-TOP OF HEAD						o						

TABLE A-1. Continued

	Basic Body Descriptors	Key Dimen./Microcosms	Garments (Clothing/PE)	Clothing Manikins	Load-Carrying Systems	Head and Face Equipment	Gloves	Foot Gear	Workspace/Body Clearance	Aircraft Accommodation	Body Links	Anthropomorphic Analogues
(38) CROTCH HEIGHT		O	O	O								O
(39) CROTCH LENGTH (ND)			O	O								
(40) CROTCH LENGTH (O)			O	O								
(D11) CROTCH LENGTH, ANTERIOR (ND)			O	O								
(D12) CROTCH LENGTH ANTERIOR (O)			O	O								
(41) CROTCH LENGTH, POSTERIOR (ND)			O	O								
(42) CROTCH LENGTH, POSTERIOR (O)			O	O								
(D13) DACTYLION HEIGHT									O			O
(D14) DACTYLION REACH FROM WALL									O	O		O
(D15) DACTYLION REACH FROM WALL, EXT									O			O
(43) EAR BREADTH						O						
(44) EAR LENGTH						O						
(45) EAR LENGTH ABOVE TRAGION						O						
(46) EAR PROTRUSION						O						
(H14) ECTOORBITALE-BACK OF HEAD						O						
(H15) ECTOORBITALE-TOP OF HEAD						O						
(47) ELBOW CIRCUMFERENCE				O					O			O
(48) ELBOW REST HEIGHT									O			O
(D16) ELBOW REST HEIGHT, STANDING									O			O
(D17) ELBOW-CENTER OF GRIP LENGTH									O			O
(D18) ELBOW-WRIST LENGTH									O			O
(D19) EYE HEIGHT									O			O
(49) EYE HEIGHT, SITTING		O							O		O	O
(D20) EYE-TRAGION LINK											O	O
(50) FOOT BREADTH, HORIZONTAL		O						O				O
(51) FOOT LENGTH		O						O	O		O	O
(52) FOREARM CIRCUMFERENCE, FLEXED			O						O			O
(53) FOREARM-FOREARM BREADTH									O	O		O
(54) FOREARM-HAND LENGTH									O			O
(H16) FRONTOTEMPORALE-BACK OF HEAD						O						

TABLE A-1. Continued

	Basic Body Descriptors	Key Dimen./Microcosms	Garments (Clothing/PE)	Clothing Manikins	Load-Carrying Systems	Head and Face Equipment	Gloves	Foot Gear	Workspace/Body Clearance	Aircraft Accommodation	Body Links	Anthropomorphic Analogues
(H17) FRONTOTEMPORALE-TOP OF HEAD (D21) FUNCTIONAL GRIP REACH (D22) FUNCTIONAL GRIP REACH, EXTENDED (55) FUNCTIONAL LEG LENGTH (H18) GLABELLA-BACK OF HEAD						O			O O	O		O O
(H19) GLABELLA-TOP OF HEAD (56) GLUTEAL FURROW HEIGHT (H20) GONION-BACK OF HEAD (H21) GONION-TOP OF HEAD (57) HAND BREADTH		O	O	O		O O O	O		O			O
(58) HAND CIRCUMFERENCE (59) HAND LENGTH (60) HEAD BREADTH (61) HEAD CIRCUMFERENCE (62) HEAD LENGTH		O O O O O	O O			O O O	O O		O O	O	O	O O O O
(63) HEEL-ANKLE CIRCUMFERENCE (64) HEEL BREADTH (65) HIP BREADTH (66) HIP BREADTH, SITTING (67) ILIOCRISTALE HEIGHT			O O O	O O	O			O O	O			O O O
(D23) INDEX FINGER REACH (D24) INDEX FINGER REACH, EXTENDED (H22) INFRAORBITALE-BACK OF HEAD (H23) INFRAORBITALE-TOP OF HEAD (68) INTERPUPILLARY BREADTH			O			O O O			O O		O	O O O
(69) INTERSCYE I (70) INTERSCYE II (71) KNEE CIRCUMFERENCE (72) KNEE HEIGHT, MIDPATELLA (73) KNEE HEIGHT, SITTING			O O O C	O O O	O				O			O O O

TABLE A-1. Continued

	Basic Body Descriptors	Key Dimen./Microcosms	Garments (Clothing/PE)	Clothing Manikins	Load-Carrying Systems	Head and Face Equipment	Gloves	Foot Gear	Workspace/Body Clearance	Aircraft Accommodation	Body Links	Anthropomorphic Analogues
(74) LATERAL FEMORAL EPICONDYLE HT (75) LATERAL MALLEOLUS HEIGHT (H24) LIP LENGTH (76) LOWER THIGH CIRCUMFERENCE (H25) MAXIMUM FRONTAL BREADTH			O	O		O		O			O	O
(H26) MENTON-BACK OF HEAD (H27) MENTON-CRINION LENGTH (77) MENTON-SELLION LENGTH (H28) MENTON-SELLION LENGTH (H29) MENTON-SUBNASALE LENGTH		O				O						O
(H30) MENTON-TOP OF HEAD (78) MIDSHOULDER HEIGHT, SITTING (H31) MINIMUM FRONTAL BREADTH (79) NECK-BUSTPOINT/THELION LENGTH (80) NECK CIRCUMFERENCE			O	O	O	O			O			O
(81) NECK CIRCUMFERENCE, BASE (82) NECK HEIGHT, LATERAL (D25) NECK LINK (D26) NECK-BUTTOCK LENGTH (D27) NECK-GLUTEAL FURROW LENGTH			O	O							O	O
(D28) NECK-SCYE LENGTH (H32) NOSE BREADTH (H33) NOSE PROTRUSION (83) OVERHEAD FINGERTIP REACH (84) OVERHEAD FINGERTIP REACH, EXT			O	O	O	O			O			O
(85) OVERHEAD FINGERTIP REACH, SIT (D29) PELVIC LINK (86) POPLITEAL HEIGHT (H34) PRONASALE-BACK OF HEAD (H35) PRONASALE-TOP OF HEAD						O		O	O		O	O

TABLE A-1. Continued

	Basic Body Descriptors	Key Dimen./Microcosms	Garments (Clothing/PE)	Clothing Manikins	Load-Carrying Systems	Head and Face Equipment	Gloves	Foot Gear	Workspace/Body Clearance	Aircraft Accommodation	Body Links	Anthropomorphic Analogues
(87) RADIALE-STYLION LENGTH											O	
(D30) RISE (ND)			O	O								
(D31) RISE (O)			O	O								
(88) SCYE CIRCUMFERENCE			O	O								
(89) SCYE DEPTH			O	O	O							
(H36) SELLION-BACK OF HEAD						O						
(H37) SELLION-TOP OF HEAD						O						
(90) SHOULDER CIRCUMFERENCE		O	O									O
(91) SHOULDER-ELBOW LENGTH			O						O			O
(92) SHOULDER LENGTH			O	O	O							
(D32) SHOULDER SLOPE			O	O								
(D33) SHOULDER-WAIST LENGTH (ND)			O	O								
(D34) SHOULDER-WAIST LENGTH (O)			O	O								
(93) SITTING HEIGHT	O	O							O	O	O	O
(D35) SLEEVE INSEAM			O	O								
(94) SLEEVE LENGTH: SPINE-ELBOW			O									
(95) SLEEVE LENGTH: SPINE-SCYE			O									
(96) SLEEVE LENGTH: SPINE-WRIST		O	O									
(97) SLEEVE OUTSEAM			O	O								
(98) SPAN			O						O	O		O
(99) STATURE	O	O	O		O				O		O	O
(H38) STOMION-BACK OF HEAD						O						
(H39) STOMION-TOP OF HEAD						O						
(100) STRAP LENGTH			O	O	O							
(H40) SUBNASALE-BACK OF HEAD						O						
(H41) SUBNASALE-SELLION LENGTH						O						O
(H42) SUBNASALE-TOP OF HEAD						O						
(101) SUPRASTERNALE HEIGHT			O	O							O	
(D36) SUPRASTERNALE HEIGHT, SITTING			O									
(102) TENTH RIB HEIGHT			O									O

TABLE A-1. Continued

	Basic Body Descriptors	Key Dimen./Microcosms	Garments (Clothing/PE)	Clothing Manikins	Load-Carrying Systems	Head and Face Equipment	Gloves	Foot Gear	Workspace/Body Clearance	Aircraft Accommodation	Body Links	Anthropomorphic Analogues
(103) THIGH CIRCUMFERENCE			O	O								O
(104) THIGH CLEARANCE			O						O			O
(D37) THIGH LINK											O	O
(D38) THORAX LINK											O	O
(105) THUMB BREADTH							O		O			O
(106) THUMB TIP REACH									O	O		O
(D39) THUMB TIP REACH, EXTENDED									O	O		O
(D40) TRAGION HEIGHT												O
(D41) TRAGION HEIGHT, SITTING												O
(H43) TRAGION-BACK OF HEAD						O						O
(H44) TRAGION-TOP OF HEAD						O						O
(107) TROCHANTERION HEIGHT											O	O
(D42) VERTICAL GRIP REACH									O	O		O
(D43) VERTICAL GRIP REACH DOWN									O	O		O
(D44) VERTICAL GRIP REACH, EXTENDED									O	O		O
(D45) VERTICAL GRIP REACH, SITTING									O			O
(D46) VERTICAL INDEX FINGERTIP REACH									O			O
(D47) VERTICAL INDEX FINGERTIP RCH DOWN									O			O
(D48) VERTICAL INDEX FINGERTIP RCH, EXT									O			O
(D49) VERTICAL INDEX FINGERTIP RCH, SIT									O			O
(D50) VERTICAL THUMB TIP REACH DOWN									O			O
(D51) VERTICAL THUMB TIP REACH, SITTING									O			O
(108) VERTICAL TRUNK CIRC (ASCC)		O	O	O	O							
(109) VERTICAL TRUNK CIRC (USA)		O	O	O	O							
(D52) VERTICAL WRIST HEIGHT									O			
(D53) VERTICAL WRIST HEIGHT, EXTENDED									O			
(D54) VERTICAL WRIST HEIGHT, SITTING									O			
(110) WAIST BACK LENGTH (NI)			O	O	O							
(111) WAIST BACK LENGTH (O)			O	O	O							
(D55) WAIST BACK, VERTICAL (NI)			O	O								

TABLE A-1. Continued

	Basic Body Descriptors	Key Dimen./Microcosms	Garments (Clothing/PE)	Clothing Manikins	Load-Carrying Systems	Head and Face Equipment	Gloves	Foot Gear	Workspace/Body Clearance	Aircraft Accommodation	Body Links	Anthropomorphic Analogues
(D56) WAIST BACK, VERTICAL (O)			O	O								
(112) WAIST BREADTH			O	O	O							O
(113) WAIST CIRCUMFERENCE (NI)		O	O	O	O							O
(114) WAIST CIRCUMFERENCE (O)		O	O	O	O							O
(115) WAIST DEPTH			O	O	O							O
(116) WAIST FRONT LENGTH (NI)		O	O	O	O							
(117) WAIST FRONT LENGTH (O)		O	O	O	O							
(118) WAIST HEIGHT (NI)			O	O	O				O			O
(119) WAIST HEIGHT (O)			O	O	O				O			O
(120) WAIST HEIGHT, SITTING (NI)			O						O			O
(121) WAIST HEIGHT, SITTING (O)			O						O			O
(D57) WAIST-BUTTOCK DROP (NI)			O	O								
(D58) WAIST-BUTTOCK DROP (O)			O	O								
(122) WAIST-HIP LENGTH			O	O								
(123) WAIST (NI) - WAIST (O) LENGTH			O	O								
(D59) WAIST-WAIST (NI) OVER SHOULDER			O	O								
(D60) WAIST-WAIST (O) OVER SHOULDER			O	O								
(124) WEIGHT	O	O	O						O	O		O
(125) WRIST-CENTER OF GRIP LENGTH									O	O		O
(126) WRIST CIRCUMFERENCE			O	O			O					O
(127) WRIST HEIGHT									O			O
(128) WRIST HEIGHT, SITTING									O			O
(129) WRIST-INDEX FINGER LENGTH									O			O
(130) WRIST-THUMB TIP LENGTH									O	O		O
(131) WRIST-WALL LENGTH									O	O		O
(132) WRIST-WALL LENGTH EXTENDED									O			O
(H45) ZYGION-BACK OF HEAD						O						
(H46) ZYGION-TOP OF HEAD						O						
(H47) ZYGOFONTALE-BACK OF HEAD						O						
(H48) ZYGOFONTALE-TOP OF HEAD						O						



## APPENDIX B.

### The Statistical Measures

The statistical measures used in this report to summarize the survey data are univariate statistics selected to provide potential users with a maximum of useful information. They are, too, the statistics that are used in other anthropometric reports prepared by the U.S. Army.

The statistics provided for each variable are the following:

1. The arithmetic mean ( $\bar{x}$ ). This is the arithmetic average and is computed as the sum of the values divided by the number of values:

$$\bar{x} = \frac{\sum X}{N}$$

where X is the individual measurement and N is the sample size.

2. The standard error of the mean ( $Se_{\bar{x}}$ ). This is a standard deviation type of statistic and is an estimate of the sampling error of the mean. It is computed as:

$$Se_{\bar{x}} = \frac{SD}{\sqrt{N}}$$

where SD is the standard deviation for that variable and N is the sample size.

3. The standard deviation (SD). This is a measure of variability and is computed as:

$$SD = \sqrt{\sum (X - \bar{x})^2 / N}$$

where X is the individual measurement,  $\bar{x}$  is the mean value for that measurement, and N is the sample size.

4. The standard error of the SD ( $Se_{SD}$ ). This is another measure of variability and is an estimate of the sampling error of the SD. It is computed as:

$$Se_{SD} = \frac{SD}{\sqrt{2N}}$$

where SD is the standard deviation of the variable of interest and N is the sample size.

5. Minimum. The smallest observed value for a particular variable.
6. Maximum. The largest observed value for a particular variable.
7. N. The number of subjects measured for a particular variable.
8. Symmetry ( $\beta_1$ ). A dimensionless statistic that is an indicator of whether a set of data is symmetrically distributed. It is computed as:

$$\beta_1 = \frac{\sum (X - \bar{x})^3}{N \cdot SD^3}$$

where  $X$  is the individual measurement,  $\bar{x}$  is the mean of that measurement,  $N$  is the sample size, and  $SD$  is the standard deviation of the measurement. The normal distribution value for  $\beta_1$  is 0.

9. Kurtosis ( $\beta_2$ ). A dimensionless statistic that indicates the level of agreement between a normal distribution and the actual distribution of the data. The normal distribution value for  $\beta_2$  is 3.
10. The coefficient of variation. A statistic that restates the standard deviation as a percent of the mean and is computed as:

$$CV = 100 \cdot \frac{SD}{\bar{x}}$$

where  $\bar{x}$  is the mean and  $SD$  is the standard deviation of a measurement.

11. The frequency tables. These tables group the data for a variable into a series of intervals. The intervals used in this output are 1 mm, 2 mm, 2.5 mm, 5 mm, 10 mm, 15 mm, and 20 mm. The tables list, for each interval, the start and end point of the interval, the number of subjects that fall within the interval (frequency or  $F$ ); the cumulative frequency (Cum $F$ ); and the values of  $F$  and Cum $F$  expressed as a percentage of the total number of measurements for that variable ( $F$  Pct and Cum $F$  Pct).
12. The percentiles. This group of statistics represents measures of order or position. These measures can be thought of as being obtained by arranging the data in order from the smallest to the largest and then observing the value of the datum which lies at a specified position in the array. The 99 percentiles--ranging from the first to the 99th--are the values at the points which separate consecutive blocks or units of 1% of the data in the ordered array. The first percentile is the value which separates the smallest 1% of the data from the 99% of the data with larger values; the second percentile separates the smallest 2% from the larger 98% and so on. Twenty-five of these percentiles which are believed to be most useful to designers and engineers have been included for each measurement.

The calculation of the percentiles uses a procedure developed by Edmund Churchill specifically for anthropometric survey data; it is described in detail in Herzberg et al, 1963.<sup>29</sup> The percentile values are first calculated by routine interpolation within the cumulative frequency distribution. These values are then smoothed by the use of a fourth-degree polynomial in terms of normal-curve deviates. The procedure approximates a graphic process of deriving percentiles using normal probability paper.

## APPENDIX C.

### Comparability of ANSUR Dimensions with Dimensions of Other Large-scale Surveys

The primary objective of this appendix is to document the comparability of ANSUR dimensions with like or similarly named dimensions measured in other large-scale anthropometric surveys. Data from surveys are frequently used to compare body-size distributions among and between populations, e.g., males and females, occupational groups, racial groups, age categories. A particularly vexing problem in drawing conclusions from such comparisons is whether differences between the data are reflecting real population differences or are the result of using different techniques to measure what may be described or named as the same dimension. Differences in landmark definitions, subject positioning, instruments and their techniques of use can and do lead to significantly different results.

It is particularly important that the body-size comparability among U.S. military populations be known. Items of personal-protective equipment, clothing, and weapon systems are sometimes designed to be used by more than one U.S. military service and/or by allied services in other countries. In recent years, design for commonality of use among NATO services has received increased emphasis. This kind of cooperative effort requires knowledge of population distributions of dimensions which form the basis for sizing, procurement and issue of protective equipment, and determination of the comparability of persons who may be called upon to use often-restrictive workspaces, as in the case of pilots from one country undergoing training in another nation's aircraft.

Dimensions measured in ANSUR are compared to like or similarly named dimensions measured in six earlier U.S. and two foreign military surveys and two surveys of U.S. civilians. Data from the earlier military surveys serve as the basis for the design of current equipment, clothing, and systems. Many of these, of course, will remain in military inventories for some time.

The following means were used to judge the comparability of ANSUR dimensions to other survey dimensions:

1. published descriptions of the dimensions and how they were measured.
2. published definitions of the landmarks used.
3. knowledge of measuring and landmarking techniques observed in the field by one or two of the authors\* during five of the six U.S. military surveys and personal interaction with the principal investigators of all the other surveys except O'Brien's.
4. examination of summary statistics.

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\* John T. McConville; Charles E. Clauser.

Table C-1 presents the authors' judgments about the comparability of the ANSUR data to data from the other surveys listed. The following codes are used:

**C - COMPARABLE** -- The landmarks and measuring techniques used are of such comparability that differences between data from surveys can be considered to reflect real anthropometric differences between populations.

**PC - PROBABLY COMPARABLE** -- Differences in landmark definitions and/or measuring techniques are of insufficient magnitude to make the resulting data inappropriate to use for most human engineering purposes such as the sizing, design, procurement, and issuing of military equipment or assessing the suitability of assigning personnel to restrictive workspaces.

**NC - NOT COMPARABLE** -- Landmark differences and measuring techniques are believed to be different enough so that dimensions so coded should not be used as the basis for answering any population comparison questions.

**CU - COMPARABILITY UNKNOWN** -- Most of the dimensions receiving this designation are bust-related dimensions found among those measured in the O'Brien<sup>36</sup> effort. In this survey a bandeau instead of a bra was worn and comparability cannot be determined. Data from the few other dimensions coded CU reflect discrepancies for which no explanation is readily apparent.

The comparability between derived dimensions in ANSUR and like dimensions measured directly in other surveys is, and will remain, unknown without extensive analyses. Therefore, derived dimensions do not appear in this table.

Although the ANSUR automated headboard was a unique measuring device, the technique was sufficiently similar in principle to older headboard measuring techniques to make comparisons valid. A general comparison of headboard data from ANSUR to headboard data from the 1967 and 1968 Air Force survey and the 1970 Army survey demonstrates that the coefficients of variation in ANSUR are smaller than the coefficients of variation of like dimensions from the other three surveys. These smaller coefficients are believed to indicate that a more stable subject head position was achieved using the automated headboard than could be achieved with headboards used in previous surveys.

**TABLE C-1. ANSUR Dimensions:  
Assessment of Comparability  
with Other Surveys.**

C = comparable  
NC = not comparable  
CU = comparability unknown  
PC = probably comparable

	USN '84 <sup>30</sup>	USA '66 <sup>1</sup>	USA '70 <sup>31</sup>	USAF '67 <sup>32</sup>	RAF 2000 <sup>25</sup>	CF <sup>33</sup>	USAF '68 Women <sup>34</sup>	USA '77 Women <sup>3</sup>	HES <sup>35</sup>	O'Brien <sup>36</sup>
(1) ABDOMINAL EXTENSION DEPTH, SIT					NC			C		
(2) ACROMIAL HEIGHT		NC	PC	PC			PC	PC		
(3) ACROMIAL HEIGHT, SITTING	NC			NC	NC					
(4) ACROMION-RADIALE LENGTH				PC			PC	PC		
(H1) ALARE-BACK OF HEAD										
(H2) ALARE-TOP OF HEAD										
(5) ANKLE CIRCUMFERENCE	C	C	C	C	C		C	C		C
(6) AXILLA HEIGHT					NC			C		
(7) AXILLARY ARM CIRCUMFERENCE	C						C	C	NC	C
(8) BALL OF FOOT CIRCUMFERENCE		PC	C	C	NC			C		
(9) BALL OF FOOT LENGTH		C	C	C				C		
(10) BIACROMIAL BREADTH	NC	NC	NC	NC	NC	NC	NC	NC		NC
(11) BICEPS CIRCUMFERENCE, FLEXED	C	C	C	C	C	C	C	C		
(12) BIELTOLD BREADTH		C	C	C		C	C	C		
(H3) BIGONIAL BREADTH	PC			PC			PC			
(H4) BINFRAORBITALE BREADTH										
(13) BIMALLEOLAR BREADTH				C						
(H5) BIOCLAR BREADTH, MAXIMUM										
(14) BISPINOUS BREADTH								CU		
(H6) BITRAGION BREADTH	PC	PC	PC	PC			PC	PC		
(15) BITRAGION CHIN ARC										
(16) BITRAGION CORONAL ARC	C		C	C	C	C	C	C		
(17) BITRAGION CRINION ARC										
(18) BITRAGION FRONTAL ARC	C			C				C		
(19) BITRAGION SUBMANDIBULAR ARC	C			C				C		
(20) BITRAGION SUBNASALE ARC	C			C						
(21) BIZYGOMATIC BREADTH	PC	C	C	C		C	C	C		
(H7) BIZYGOMATIC BREADTH	PC	PC	PC	PC		PC	PC	PC		
(22) BSTPT/THELION-BSTPT/THELION BR							C			
(23) BUTTOCK CIRCUMFERENCE	C	C	C	C	C	C		C		NC

TABLE C-1. Continued

	USN '84	USA '86	USA '70	USAF '67	RAF 2,000	CF	USAF '68 Women	USA '77 Women	HES	O'Brien
(24) BUTTOCK DEPTH	C			C			C			
(25) BUTTOCK HEIGHT				C			C			NC
(26) BUTTOCK-KNEE LENGTH	NC	NC	NC	NC	NC		NC	NC		NC
(27) BUTTOCK-POPLITEAL LENGTH	NC	NC	NC	NC		NC	NC	NC		NC
(28) CALF CIRCUMFERENCE	C	C	C	C	C		C	C		C
(29) CALF HEIGHT		C	C	C				PC		
(30) CERVICALE HEIGHT	NC	NC	NC	NC			C	C		C
(31) CERVICALE HEIGHT, SITTING										C
(H8) CHEILION-BACK OF HEAD										
(H9) CHEILION-TOP OF HEAD										
(32) CHEST BREADTH	PC	PC	PC	PC			PC	PC		
(33) CHEST CIRCUMFERENCE	PC	PC	PC	PC	PC	PC	PC	PC	NC	CU
(34) CHEST CIRCUMFERENCE AT SCYE				C			CU	CU	NC	CU
(35) CHEST CIRC BELOW BREAST							PC	PC		
(36) CHEST DEPTH	C	C	C	C			C	C		
(37) CHEST HEIGHT	CU			CU			CU	CU		NC
(H10) CHIN-BACK OF HEAD				PC			PC	PC		
(H11) CHIN-TOP OF HEAD										
(H12) CRINION-BACK OF HEAD										
(H13) CRINION-TOP OF HEAD										
(38) CROTCH HEIGHT	PC	PC	PC	PC	PC	PC	PC	PC		NC
(39) CROTCH LENGTH (NI)										
(40) CROTCH LENGTH (O)				NC						
(41) CROTCH LENGTH, POSTERIOR (NI)										
(42) CROTCH LENGTH, POSTERIOR (O)										
(43) EAR BREADTH	C			C			C	C		
(44) EAR LENGTH	C			C			C	C		
(45) EAR LENGTH ABOVE TRAGION				C						
(46) EAR PROTRUSION				NC						
(H14) ECTOORBITALE-BACK OF HEAD										

TABLE C-1. Continued

	USN '84	USA '86	USA '70	USAF '67	RAF 2,000	CF	USAF '68 Women	USA '77 Women	HES	O'Brien
(H15) ECTOORBITALE-TOP OF HEAD										
(47) ELBOW CIRCUMFERENCE				C						NC
(48) ELBOW REST HEIGHT	PC		PC	PC	PC					
(49) EYE HEIGHT, SITTING	C	C	C	C			C	C		
(50) FOOT BREADTH, HORIZONTAL	C	C	C	C	PC	C	C	C		
(51) FOOT LENGTH	C	C	C	C	PC	C	C	C		
(52) FOREARM CIRCUMFERENCE, FLEXED	PC	PC	PC	C			C	PC		NC
(53) FOREARM-FOREARM BREADTH				C						
(54) FOREARM-HAND LENGTH	C	C	C		C			C		
(H16) FRONTOTEMPORALE-BACK OF HEAD										
(H17) FRONTOTEMPORALE-TOP OF HEAD										
(55) FUNCTIONAL LEG LENGTH			NC		NC			NC		
(H18) GLABELLA-BACK OF HEAD				PC				PC		
(H19) GLABELLA-TOP OF HEAD			PC	PC				PC		
(56) GLUTEAL FURROW HEIGHT	C			C			C	C		
(H20) GONION-BACK OF HEAD										
(H21) GONION-TOP OF HEAD										
(57) HAND BREADTH	C	C	C	C		C	C	C		
(58) HAND CIRCUMFERENCE	C	C	C	C			C	C		
(59) HAND LENGTH	PC	PC	PC	C		PC	C	CU		
(60) HEAD BREADTH	C	C	C	C	C	C	C	C		
(61) HEAD CIRCUMFERENCE	C	C	C	C	NC	NC	C	C		
(62) HEAD LENGTH	C	C	C	C	C		C	C		
(63) HEEL-ANKLE CIRCUMFERENCE		C	C	C	NC			C		
(64) HEEL BREADTH		CU	NC					PC		
(65) HIP BREADTH	PC	PC	PC	PC			PC	PC		
(66) HIP BREADTH, SITTING	CU	C	NC	NC			NC	C	C	
(67) ILIOCRISTALE HEIGHT		C		PC						
(H22) INFRAORBITALE-BACK OF HEAD										
(H23) INFRAORBITALE-TOP OF HEAD										



TABLE C-1. Continued

	USN '64	USA '66	USA '70	USAF '67	RAF 2,000	CF	USAF '68 Women	USA '77 Women	HES	O'Brien
(68) INTERPUPILLARY BREADTH	NC	NC	NC	NC				NC		
(69) INTERSCYE I	C	C	C	NC			C	NC		NC
(70) INTERSCYE II								PC		
(71) KNEE CIRCUMFERENCE				C			C	NC		
(72) KNEE HEIGHT, MIDPATELLA				PC						
(73) KNEE HEIGHT, SITTING	CU	CU	NC	C	NC			NC		PC
(74) LATERAL FEMORAL EPICONDYLE HT										
(75) LATERAL MALLEOLUS HEIGHT				PC			CU			
(H24) LIP LENGTH	CU			CU			CU			
(76) LOWER THIGH CIRCUMFERENCE	PC	PC	PC							
(H25) MAXIMUM FRONTAL BREADTH	CU			CU						
(H26) MENTON-BACK OF HEAD					NC		NC	NC		
(H27) MENTON-CRINION LENGTH								PC		
(77) MENTON-SELLION LENGTH		C	NC	C		C	NC	NC		
(H28) MENTON-SELLION LENGTH		PC	NC	PC		PC	NC	NC		
(H29) MENTON-SUBNASALE LENGTH										
(H30) MENTON-TOP OF HEAD				NC	NC		NC	NC		
(78) MIDSHOULDER HEIGHT, SITTING		C	C	C			C			
(H31) MINIMUM FRONTAL BREADTH				PC				PC		
(79) NECK-BUSTPOINT/THELION LENGTH							NC	NC		NC
(80) NECK CIRCUMFERENCE	C	C	C	NC	C	NC				
(81) NECK CIRCUMFERENCE, BASE							NC	NC		NC
(82) NECK HEIGHT, LATERAL										
(H32) NOSE BREADTH	PC			PC			PC	PC		
(H33) NOSE PROTRUSION	CU									
(83) OVERHEAD FINGERTIP REACH										
(84) OVERHEAD FINGERTIP REACH, EXT'										
(85) OVERHEAD FINGERTIP REACH, SIT		NC	C					PC		
(86) POPLITEAL HEIGHT	NC	NC	NC	NC			NC	NC		CU
(H34) PRONASALE-BACK OF HEAD	PC	PC	PC	PC			PC	PC		

TABLE C-1. Continued

	USN '64	USA '66	USA '70	USAF '67	RAF 2,000	CF	USAF '68 Women	USA '77 Women	HES	O'Brien
(H35) PRONASALE-TOP OF HEAD				CU			CU	CU		
(87) RADIALE-STYLION LENGTH				C			C	C		
(88) SCYE CIRCUMFERENCE	C	C	C	NC			C	C		NC
(89) SCYE DEPTH										CU
(H36) SELLION-BACK OF HEAD	CU	CU	CU	CU				CU		
(H37) SELLION-TOP OF HEAD				CU				CU		
(90) SHOULDER CIRCUMFERENCE	C	C	C	C			C	C		
(91) SHOULDER-ELBOW LENGTH	NC	PC	PC	NC			NC	PC		
(92) SHOULDER LENGTH	NC	NC	NC	NC			NC	NC		NC
(93) SITTING HEIGHT	C	C	C	C	NC		C	C	C	
(94) SLEEVE LENGTH: SPINE-ELBOW				NC			C			NC
(95) SLEEVE LENGTH: SPINE-SCYE				NC			PC			
(96) SLEEVE LENGTH: SPINE-WRIST	C	NC	C	NC		C	PC			
(97) SLEEVE OUTSEAM							PC			
(98) SPAN						C	NC			
(99) STATURE	C	C	C	C	NC	C	C	C	NC	C
(H38) STOMION-BACK OF HEAD								CU		
(H39) STOMION-TOP OF HEAD				PC			CU	CU		
(100) STRAP LENGTH							NC			
(H40) SUBNASALE-BACK OF HEAD				CU			PC	CU		
(H41) SUBNASALE-SELLION LENGTH	PC			PC			PC	PC		
(H42) SUBNASALE-TOP OF HEAD				PC			CU	CU		
(101) SUPRASTERNAL HEIGHT	C			C			C	C		
(102) TENTH RIB HEIGHT										
(103) THIGH CIRCUMFERENCE	C	C	C	C	C		C	C		
(104) THIGH CLEARANCE			NC	C	CU		NC	PC	NC	
(105) THUMB BREADTH										
(106) THUMB TIP REACH	PC	PC	PC	PC	PC	PC	PC	PC		
(H43) TRAGION-BACK OF HEAD	CU	PC	PC	PC	PC		PC	CU		
(H44) TRAGION-TOP OF HEAD	PC	PC	PC	PC	PC		PC	CU		

TABLE C-1. Continued

	USN '64	USA '66	USA '70	USAF '67	RAF 2,000	CF	USAF '68 Women	USA '77 Women	HES	O'Brien
(107) TROCHANTERION HEIGHT				C			NC	C		
(108) VERTICAL TRUNK CIRC (ASCC)					C					CU
(109) VERTICAL TRUNK CIRC (USA)	NC	PC	NC	NC		C	PC	PC		
(110) WAIST BACK LENGTH (NI)										
(111) WAIST BACK LENGTH (O)		CU	CU	CU						
(112) WAIST BREADTH	NC			C			NC	NC		
(113) WAIST CIRCUMFERENCE (NI)	CU									
(114) WAIST CIRCUMFERENCE (O)		C	C	C		C			CU	
(115) WAIST DEPTH	NC			C			NC	NC		
(116) WAIST FRONT LENGTH (NI)										
(117) WAIST FRONT LENGTH (O)				NC						
(118) WAIST HEIGHT (NI)	CU									
(119) WAIST HEIGHT (O)		C	C	C						
(120) WAIST HEIGHT, SITTING (NI)										
(121) WAIST HEIGHT, SITTING (O)							NC			
(122) WAIST-HIP LENGTH										
(123) WAIST (NI) - WAIST (O) LENGTH										
(124) WEIGHT	C	C	C	C	C	C	C	C	NC	C
(125) WRIST-CENTER OF GRIP LENGTH										
(126) WRIST CIRCUMFERENCE	NC	NC	NC	C	C		C	C		C
(127) WRIST HEIGHT				C						
(128) WRIST HEIGHT, SITTING										
(129) WRIST-INDEX FINGER LENGTH										
(130) WRIST-THUMB TIP LENGTH										
(131) WRIST-WALL LENGTH										
(132) WRIST-WALL LENGTH EXTENDED										
(H45) ZYGION-BACK OF HEAD										
(H46) ZYGION-TOP OF HEAD										
(H47) ZYGOFONTALE-BACK OF HEAD										
(H48) ZYGOFONTALE-TOP OF HEAD										

## APPENDIX D.

### A Glossary of Anatomical and Anthropometric Terms

**anatomical position** -- a standard position of the body to which all anatomical directions (e.g., superior, medial, anterior) are referenced (see Figure D-1).

**anterior** -- pertaining to the front of the body; as opposed to posterior.

**axillary** -- pertaining to the armpit (axilla).

**bi** -- a prefix denoting connection with or relation to each of two symmetrically paired parts.

**biceps (brachii)** -- the large muscle on the anterior surface of the upper arm.

**canthus** -- a corner or angle formed by the meeting of the eyelids.

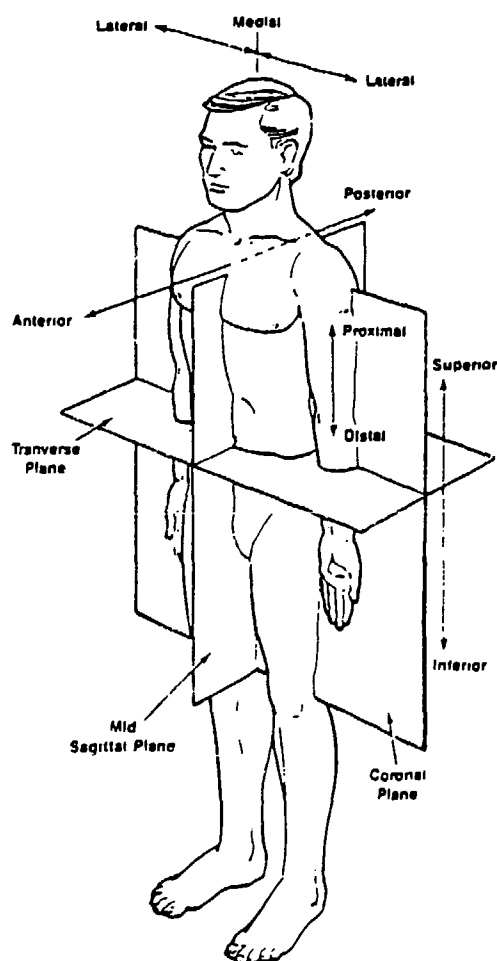


Figure D-1. The body in the anatomical position.

**coronal plane** -- any vertical plane at right angles to the midsagittal plane (see Figure D-1).

**deltoid muscle** -- the muscle that forms the flesh of the lateral side of the upper third of the upper arm.

**distal** -- the end of a bone or body segment farthest from the head; as opposed to proximal (see Figure D-1).

**dorsal** -- pertaining to the back of the body or one of its parts (on the hand, its top surface as opposed to its palmar surface).

**epicondyle** -- the bony eminence at the distal end of the humerus, radius, and femur.

**extend** -- to move adjacent segments so that the angle between them is increased, as when the leg is straightened; as opposed to flex.

**femoral epicondyle** -- the bony projections on either side of the distal end of the femur.

**femur** -- the thigh bone.

**flex** -- to move a joint in such a direction as to bring together the two parts which it connects, as when the elbow is bent; as opposed to extend.

**fossa** -- a depression, usually somewhat longitudinal in shape, in the surface of a part, as in a bone.

**Frankfort plane** -- the standard horizontal plane or orientation of the head. The plane is established by a line passing through the right trignon (approximate earhole) and the lowest point of the right orbit (eye socket).

**frontal bone** -- the bone that underlies the forehead.

**hyperextend** -- to overextend a limb or other part of the body.

**iliac** -- pertaining to an ilium, which is one of the three fused bones that form one side of the pelvis.

**iliac crest** -- the superior rim of a pelvic bone.

**ilium** -- the largest and superior bone of the three fused bones that form one side of the pelvis.

**inferior** -- below, in relation to another structure; lower (see Figure D-1).

**lateral** -- lying near or toward the sides of the body; as opposed to medial (see Figure D-1).

**latissimus dorsi** -- the large muscle covering the lower half of the back above the waist and converging on the upper arm in such a way that its flesh forms the posterior border of the axilla (armpit).

**malleoli** -- rounded bony projection on either side of the ankle. The lateral malleolus, on the outside of the ankle, is at the distal end of the fibula (one of the two bones of the calf); the medial malleolus, on the inside of the ankle, is at the distal end of the tibia (shinbone).

**mandible** -- the jawbone.

**mastoid process** -- lowest bony projection behind and below the ear. It can best be felt immediately behind the earlobe.

**medial** -- lying near or toward the midline of the body; as opposed to lateral (see Figure D-1).

**metacarpophalangeal joint** -- a joint (knuckle) formed by the juncture of a finger bone (phalanx) with the palm bone (metacarpal).

**metatarsophalangeal joint** -- a joint formed by the juncture of a toe bone (phalanx) with the foot bone (metatarsal).

**midsagittal plane** -- the vertical plane which divides the body into right and left halves (see Figure D-1).

**olecranon** -- the proximal end of the ulna (elbow).

**palmar** -- pertaining to the palm side of the hand; as opposed to its dorsal surface.

**patella** -- the kneecap.

**phalanx** -- a finger or toe bone.

**pisiform** -- a wrist bone on the little finger side of the hand at the base of the palm. It can be felt as a bony protuberance just below the fleshy pad at the base of the palm.

**plantar** -- pertaining to the sole of the foot.

**posterior** -- pertaining to the back of the body; as opposed to anterior (see Figure D-1).

**proximal** -- the end of a bone or body segment nearest the head; as opposed to distal (see Figure D-1).

**radius** -- the bone of the forearm on the thumb side of the arm.

**scye** -- a tailoring term referring to the armhole of a garment.

**superior** -- above, in relation to another structure; higher (see Figure D-1).

**supra** -- prefix designating above or on.

**temporal crest** -- a ridge originating on the zygomatic process of the frontal bone and extending along the lateral aspect of the skull.

**thoracic** -- pertaining to the thorax; in this text, pertaining especially to the vertebra to which the ribs are attached.

**thorax** -- that part of the trunk between the neck and the abdomen enclosed by the rib cage.

**trapezius** -- the large muscle that originates on the neck and the upper half of the back and converges on the shoulder between midshoulder and acromion.

**vertebra** -- a bone of the spine. In humans there are seven cervical (neck), 12 thoracic (chest), five lumbar (lower back), five sacral (fused), and four caudal (tail) vertebrae.

**zygomatic arch** -- the bony arch below and to the side of the orbit of the skull extending horizontally along the side of the head from the cheekbone (the zygomatic bone) nearly to the external ear.

**zygomatic bone** -- a bone of the face underlying the upper part of the cheek.

## APPENDIX E

### The Biographical Data Form

US ARMY ANTHROPOMETRIC SURVEY (ANSUR)

BIOGRAPHICAL DATA: MILITARY HISTORY

TODAY'S DATE: ...../...../.....  
Month Day Year

TODAY'S POST: .....

1. Name: .....  
(Last) (First) (Middle)

2. Unit to which you are assigned at this post:

...../...../...../.....  
(Company) (Battalion/Battery/Group) (Brigade/Regiment) (Division)

3. Military Component: /...../ Regular Army  
/...../ Army Reserve  
/...../ National Guard

4. Military Personnel Class:

/...../ Enlisted  
/...../ Warrant Officer (Specify Branch: .....)  
/...../ Commissioned Officer (Specify Branch: .....)

5. Rank/Grade: ..... / ..... (e.g., LTC / 05)

6. Time in Service: ..... Years, ..... Months (e.g., 2 Years, 4 Months)

7. MOS: ..... (Primary) ..... (Secondary)

8. With which hand do you usually fire a weapon?

/...../ Right /...../ Left /...../ Either Hand

9. With which eye do you usually sight your weapon?

/...../ Right /...../ Left /...../ Either Eye

NATICK Form 1 (TEMP)  
1 Aug 87



## The Biographical Data Form (continued)

### US ARMY ANTHROPOMETRIC SURVEY (ANSUR)

#### BIOGRAPHICAL DATA: PERSONAL HISTORY

1. Your Birthdate: ...../...../.....  
(Month) (Day) (Year)
2. Age: ..... Years
3. Sex: ...../ Male  
...../ Female
4. Race: ...../ White, not of Hispanic origin  
...../ Black, not of Hispanic origin  
...../ Hispanic  
...../ Asian/Pacific Islander  
...../ American Indian/Alaskan Native  
...../ Mixed (Specify: .....)  
...../ Other (Specify: .....)
5. How tall are you in bare feet? ..... ' ..... " (e.g., 5' 8")  
Feet Inches
6. How much do you weigh without clothes? ..... Pounds
7. Do you wear: ...../ Prescription Glasses?  
...../ Prescription Contact Lenses?  
...../ Both?  
...../ Neither?
8. With which hand do you usually write?  
...../ Right ...../ Left ...../ Either Hand

## The Biographical Data Form (continued)

9. Do you currently participate in resistance or free-weight training at least once a week?

/...../ Yes

/...../ No

If you answered "No", go to question 10.

If you answered "Yes", complete questions 9a, 9b, and 9c.

a. How long have you been involved in this training?

..... Years, ..... Months (Example: 2 Years, 7 Months)

b. How many days per week do you now train?

Upper body: ..... Days per week

Lower body: ..... Days per week

c. On the days that you train, how many hours per day do you train?

Upper body: ..... Hours per day

Lower body: ..... Hours per day

10. Do you currently run on a regular basis?

/...../ Yes

/...../ No

If you answered "No", go to question 11.

If you answered "Yes", complete questions 10a, 10b, and 10c.

a. How long have you been running?

..... Years, ..... Months (Example: 3 Years, 9 Months)

b. How many days per week do you now run?

..... Days per week

c. On the days that you run, how many miles do you usually cover?

..... Miles

## The Biographical Data Form (continued)

11. Your Birthplace: .....
12. Mother's Birthplace: .....
13. Father's Birthplace: .....
14. Mother's Race: /...../ White, not of Hispanic origin  
/...../ Black, not of Hispanic origin  
/...../ Hispanic  
/...../ Asian/Pacific Islander  
/...../ American Indian/Alaskan Native  
/...../ Mixed (Specify: .....)  
/...../ Other (Specify: .....)
15. Father's Race: /...../ White, not of Hispanic origin  
/...../ Black, not of Hispanic origin  
/...../ Hispanic  
/...../ Asian/Pacific Islander  
/...../ American Indian/Alaskan Native  
/...../ Mixed (Specify: .....)  
/...../ Other (Specify: .....)

-----  
DO NOT WRITE BELOW THIS LINE  
-----

- |                                    |                     |
|------------------------------------|---------------------|
| 16. Ethnicity/National Extraction: | 17. Body Dimensions |
| Subject: .....                     |                     |
| Mother: .....                      | Actual Height ..... |
| Father: .....                      | Actual Weight ..... |

**SUPPLEMENTARY**

**INFORMATION**

ERRATA

TITLE: 1988 Anthropometric Survey of U.S. Army  
Personnel: Methods and Summary Statistics

AUTHORS: Claire C. Gordon, Thomas Churchill, Charles  
E. Clauser, Bruce Bradtmiller, John T.  
McConville, Ilse Tebbets, Robert A. Walker

TECHNICAL REPORT: Natick/TR-B9/044

AD NUMBER: A225094

Publication Year: September 1989

For the above-referenced Technical Report, note should be made on page 465 that head and face dimensions measured with the automated headboard device were recorded to the nearest 0.1 millimeter, not the nearest millimeter.

AD-A225094